

State of Maine



Department of the Secretary of State

I, the Secretary of State of Maine, certify that according to the provisions of the Constitution and Laws of the State of Maine, the Department of the Secretary of State is the legal custodian of the Great Seal of the State of Maine which is hereunto affixed, and that the paper to which this is attached is a true copy from the records of this Department of rule filing 86-99, accepted for filing March 31, 1986, effective April 5, 1986, composing the former rule chapter 06-096 CMR Chapter 691.



In Testimony Whereof, I have caused the Great Seal of the State of Maine to be hereunto affixed. Given under my hand at Augusta, Maine, May 21, 2003.

A handwritten signature in cursive script, reading "Dan Gwadosky".

DAN A. GWADOSKY
SECRETARY OF STATE

TO: Secretary of State
 ATTN: Administrative Procedure Officer
 State House, Augusta, Maine 04333

ACCEPTED FOR
 FILING

MAR 31 1986

SECRETARY OF STATE

86-99

1. Agency: * Department of Environmental Protection
2. Agency umbrella and unit #: 06/096
3. Title of rule(s): REGULATIONS FOR REGISTRATION, INSTALLATION, OPERATION AND
ABANDONMENT OF UNDERGROUND OIL STORAGE FACILITIES.
4. Number assigned to the rule(s): Chapter 691
5. Date(s)/method(s) of notice: Newspaper advertisement in all Daily Newspapers
6. Date(s)/place(s) of hearing(s): 12-4-86 Augusta Civic Center
7. Type of rule: ☒ new rule ☐ amendment of existing rule ☐ suspension of existing rule
☐ repeal of existing rule ☐ emergency rule
8. Name/phone of agency contact person: Scott D. Whittier (289-2651)
9. Certification Statement: I, Kenneth C. Young, Jr., hereby certify that the attached is a true copy of the rule(s) described above and lawfully adopted by the Board of Environmental Protection on February 12, 1986 and reconsidered and amended on March 26, 1986.
 Signature [Signature]
 Printed Name & Title Kenneth C. Young, Jr. Acting Commissioner
10. Approved as to form and legality by the Attorney General on March 31, 1986
 Signature [Signature]
 Printed Name Marcia J. Cleveland

*For instructions on completing this cover sheet see "A Guide to Rule-making for State Agencies", pp.8-10.

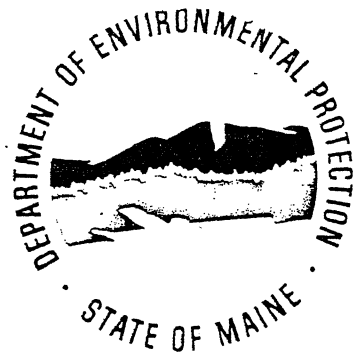
06-096

DEPARTMENT OF ENVIRONMENTAL PROTECTION

REGULATIONS FOR REGISTRATION, INSTALLATION, OPERATION AND
ABANDONMENT OF UNDERGROUND OIL STORAGE FACILITIES

CHAPTER 691

Department of Environmental Protection



COMMENTS ON THE PROPOSED RULES
CHAPTER 691 WERE RECEIVED FROM THE FOLLOWING

1. Maine Audubon Society
2. Maine Oil Dealers Association
3. Illinois Chemical Corporation - Illinois
4. Michael W. Farmer and Company - Pennsylvania
5. Enterprise Engineering - Maine
6. Natural Resources Council of Maine
7. Steel Tank Institute - Illinois
8. Maine Department of Transportation
9. Central Maine Power Company
10. Morrison Geotechnical - Maine
11. Maine Municipal Association
12. Maine Department of Human Services
13. United States Fidelity and Guaranty Company - Maine
14. American Petroleum Institute - Washington, D.C.
15. Maine Department of Environmental Protection
16. Gould Equipment Company - Maine
17. International Paper Company - Maine
18. Carol White - Maine
19. Maine Petroleum Association
20. Fueling Components Group - Ohio
21. Pine Tree Retailers Association - Maine
22. D.W. Small & Sons, Inc. - Maine
23. James Lemmon - Maine
24. Great Northern Paper Company - Maine
25. K & E Associates Incorporated - California
26. Maine Board of Underground Oil Storage Tank Installers

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Chapter 691

Regulations for Registration, Installation, Operation, and Abandonment of Underground Oil Storage Facilities

1. LEGAL AUTHORITY

This rule is authorized by 38 M.R.S.A. Section 561 et seq., as enacted by P.L. 1985, Chapter 496. The statute requires the registration of all existing, new, and replacement underground oil storage facilities with the Department of Environmental Protection; and authorizes and provides direction for the Board of Environmental Protection to develop rules for the design, installation, replacement, operation, and abandonment of underground oil storage facilities and tanks. The statute does not authorize the Board of Environmental Protection to regulate the registration, installation, or operation of underground tanks used for the storage of propane.

2. PREAMBLE

It is the purpose of the Department of Environmental Protection consistent with legislative policy, to provide necessary controls over underground oil storage facilities so as to ensure the protection of Maine's ground water resources and of public health, safety, welfare and the overall environment.

NOTE: It is the Department's intent to consult with interested and affected parties where this regulation incorporates the use of the Department's discretion.

3. DEFINITIONS

The following terms as used in this rule shall have the following meaning unless the context indicates otherwise:

A. Board. "Board" means the Maine Board of Environmental Protection.

B. Cathode. "Cathode" means the electrode of an electrolytic cell at which reduction occurs.

C. Cathodically protected. "Cathodically protected" means the use of a technique, consistent with the National Association of Corrosion Engineers publication, Recommended Practice for Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems, RP-02-85, April 1985) as amended, to prevent the corrosion of a metal surface by making that surface the cathode of an electrochemical cell.

D. Cathodic protection monitoring. "Cathodic protection monitoring" means a process of measuring the structure to electrolyte potential to determine whether a cathodically protected structure is being adequately protected against corrosion. Cathodic protection monitoring shall be performed according to the requirements of Appendix A.

E. Claims-made policy. "Claims-made policy" means an insurance policy that provides coverage for an occurrence for which a claim arising out of the occurrence is made during the term of the policy or any extension thereof.

F. Class I liquids - "Class I liquids" means liquids having a flash point below 100°F.

G. Commissioner. "Commissioner" means the Commissioner of the Maine Department of Environmental Protection.

H. Construction Facility. "Construction facility" means an underground oil storage facility intended to be used for a period of less than nine (9) months for the purpose of supplying oil to equipment used during construction activities.

I. Continuous electronic monitoring. "Continuous electronic monitoring" means the use of a monitoring device capable of automatic, unattended operation, which will provide a clear, audible or visual indication of the presence of liquid hydrocarbons or hydrocarbon vapors outside of a primary hydrocarbon container.

J. Corrosion-induced leak. "Corrosion-induced leak" means any discharge of oil from an underground oil storage facility or tank caused by the deterioration of materials which comprise the facility or tank, because of a reaction with the internal or external environment of the facility or tank.

K. Daily inventory and reconciliation. "Daily inventory and reconciliation" means accounting practices for oil stock control, which include at a minimum: (1) a record of all bulk liquid receipts; (2) a record of all liquid dispersed from the facility; (3) a daily reconciliation between sales, use, receipts, and inventory-on-hand; and (4) a monthly summary of inventory results maintained in accordance with the requirements of Section 5(B)(1) of this Rule.

NOTE: The American Petroleum Institute Publication 1621, Recommended Practice for Bulk Liquid Stock Control at Retail Outlets (1977, as amended), may be referenced for further information.

L. Department. "Department" means the Commissioner of the Maine Department of Environmental Protection or his staff.

M. Discharge. "Discharge" means any spilling, leaking, pumping, pouring, emitting, escaping, emptying, or dumping.

N. Emergency situation. "Emergency situation" means any unforeseen circumstance where the installation or replacement of an underground oil storage facility or tank is required to protect the public health, safety, and welfare.

O. Existing underground oil storage facility or tank. "Existing underground oil storage facility" and "existing underground oil storage tank" means any such facility or tank, as defined in subsections NN and OO, fully installed as of March 1, 1985, and the location of which has not changed.

P. Facilities used for Consumption on the Premises. "Facilities used for Consumption on the Premises" means underground storage facilities not used in the marketing and distribution of oil to others. This includes facilities that are used for consumption on the premises or by the owner or operator of the facility, regardless of size, including facilities installed temporarily at a construction site, all residential home heating facilities, facilities operated

by the state, any of its agencies, instrumentalities or any political subdivisions, and all other facilities not meeting the definition of a marketing and distribution facility.

Q. Facilities Used for Marketing and Distribution. "Marketing and distribution facility" means any underground oil storage facility where oil is stored for eventual resale.

R. Gallon. "Gallon" means a unit of volume in the U.S. Customary System, used in liquid measure, equal to 4 quarts, or 3.785 liters.

S. Hydrostatic piping test. "Hydrostatic piping test" means a test in which the piping components of a facility are pressurized with liquid in accordance with the requirements contained in Appendix B and monitored to determine the presence of a leak.

T. Impressed current cathodic protection system. "Impressed current cathodic protection system" means a cathodic protection system which relies on direct current supplied by a power source external to the electrode system.

U. In Service - Tanks or facilities are considered to be "in service" if product has been added or removed for its intended use during a consecutive twelve (12) month period.

V. Leak. "Leak" means a loss or gain of 0.05 gallons or more per hour at a pressure of 4 pounds per square inch gauge, as determined by a precision test.

W. Monitoring well. "Monitoring well" means a dug or drilled, cased well or other device as specified in Section 5(A)(4) and Appendix F and G of this rule, that can be used for detecting the presence of oil.

X.* Oil. "Oil" means oil, petroleum products and their by-products of any kind and in any form including, but not limited to, petroleum, fuel oil, sludge, oil refuse, oil mixed with other waste, crude oils and all other liquid hydrocarbons regardless of specific gravity, excluding propane.

Y. Operator. "Operator" means any person who is in control of, and responsible for the daily operation of an underground oil storage facility or tank.

Z. Out-of service underground oil storage facility or tank. "Out-of-service underground oil storage facility" and "out-of-service underground oil storage tank" means any such facility or tank, as defined in subsections NN and OO, neither receiving nor dispensing oil, but to be returned to service or awaiting abandonment pursuant to Section 8 of this rule.

AA. Owner. "Owner" means any person who alone, or in conjunction with others owns an underground oil storage facility.

BB. Person. "Person" means any individual person, firm, association, partnership, corporation, trust, the State and any agency of the State, governmental entity, quasi-governmental entity, the United States and any agency of the United States and any other legal entity.

CC. Pneumatic Test - An air pressure test, performed in accordance with the requirements of Appendix C.

DD. Propane. A colorless, explosive gas, widely used as a fuel.

NOTE: Propane tanks are excluded from the registration, installation and operational requirements of this rule.

EE. Precision test. "Precision test" means any underground storage tank test, approved by the Department, that is capable of detecting a loss or gain of oil of 0.05 gallons per hour at a pressure of 4 pounds per square inch gauge (psig) at the bottom of the tank and takes into consideration all variables which will affect the determination of a leak rate, including, but not limited to, temperature, pressure, external water table elevation, vapor pockets, and tank end deflection. A precision test shall be performed in strict conformity to all of the manufacturer's standard operating procedures.

FF. Primary sand and gravel recharge area. "Primary sand and gravel recharge area" means the surface area directly overlying sand and gravel formations that provide direct replenishment of groundwater in sand and gravel and fractured bedrock aquifers. The term does not include areas overlying formations that have been identified as unsaturated and not contiguous with saturated formations.

GG. Private water supply. "Private water supply" means any dug, drilled or other type of well or spring or other source of water which collects water for human or animal consumption and is not a public water supply.

HH. Public drinking water supply. Public drinking water supply means any well or other source of water which furnishes water to the public for human consumption for at least 15 connections, regularly serves an average of at least 25 individuals daily at least 30 days out of the year, or which supplies bottled water for sale.

II. Secondary containment. "Secondary containment" means a system installed so that any material that is discharged or has leaked from the primary containment is prevented from reaching the soil or ground water outside the system for the anticipated period of time necessary to detect and recover the discharged material. Such a system may include, but is not limited to, impervious liners, double-walled tanks, impervious soil treatments or any other method demonstrated to the satisfaction of the Department to be technically feasible and effective, and which meets the requirements of Section 5(A)(4)(a).

JJ. Sensitive geologic areas. "Sensitive geologic areas" means any of the following: 1) significant ground water aquifers, as defined in subsection KK below; 2) primary sand and gravel recharge areas, as defined in subsection FF above; 3) locations within 1,000 feet of a public drinking water supply; or 4) locations within 300 feet of a private drinking water supply.

KK. Significant ground water aquifer. "Significant ground water aquifer" means a porous formation of ice-contact and glacial outwash sand and gravel, as identified by the current Maine Geological Survey maps, that contains significant recoverable quantities of water which is likely to provide drinking water supplies.

NOTE: Sand and Gravel Aquifer Maps are available from the Maine Geological Survey, Department of Conservation, State House Station #22, Augusta, Maine 04333.

LL. Statistical inventory analysis. "Statistical inventory analysis" means a process of evaluating the various sources of errors present in daily inventory records, conducted in accordance with the requirements of Section 5(B)(2).

MM. Temporarily out of service facility or tank. "Temporarily out of service facility" and "temporarily out of service tank" mean a facility which has received written permission from the Department to remain inactive for an additional twelve (12) months, in accordance with the requirements of Section 8 of this rule.

NN. Underground oil storage facility. "Underground oil storage facility," also referred to as "facility," means any underground oil storage tank or tanks, as defined in subsection 00, together with associated piping and dispensing facilities located under any land at a single location and used, or intended to be used, for the storage or supply of oil, as defined in this rule.

00. Underground oil storage tank. "Underground oil storage tank," also referred to as "tank," means any container, 10% or more of which is beneath the surface of the ground and which is used, or intended to be used, for the storage or supply of oil as defined in this subchapter, but does not include any tanks situated in an underground area if these tanks or containers are

situated upon or above the surface of a floor and in such a manner that they may be readily inspected. For the purposes of this Rule, underground oil storage tanks do not include underground propane storage tanks.

PP. Waste Oil. "Waste oil" means a petroleum based oil which, through use or handling, has become unsuitable for its original purpose due to the presence of impurities or loss of original properties. It must have sufficient liquid content to be free flowing. Waste oil is further defined in Chapter 860, Section 5 of Department's Waste Oil Management Rules.

QQ. Waste Oil Dealer. "Waste oil dealer" means any person in the business of transporting or handling more than 1,000 gallons of waste oil for the purpose of resale in a calendar month. A person who collects or stores waste oil on the site of generation, whether or not for the purpose of resale, is not a waste oil dealer.

RR. Waste oil tank. "Waste oil tank" means an underground oil storage tank used for the storage of waste oil.

4. REGISTRATION OF UNDERGROUND OIL STORAGE FACILITIES.

A. All underground oil storage tanks and facilities must be registered on a form provided by the Department, regardless of use, size or type of petroleum product stored therein and regardless of whether the tanks and facilities are in service or out of service.

B. No person may install, or cause to be installed, a new or replacement underground oil storage tank or facility without first having: 1) filed

registration materials in accordance with information requirements specified in subsection H, which have been deemed complete by the Department at least five (5) business days prior to installation; 2) sent a copy of the materials and any subsequent amendments to the local fire department having jurisdiction; 3) retained a copy to be made available on site to the Department of Environmental Protection employees, agents or authorized representative and to municipal officials; and 4) paid the registration fee in accordance with the requirements of subsection I.

C. Registration materials for new and replacement facilities, not in conformance with this rule shall not be accepted by the Department.

D. Acceptable evidence that a new or replacement tank has been properly registered shall consist of receipt of a written acknowledgement from the Department. The Department will determine the completeness of the registration materials and notify the registrant within 5 business days of receipt.

E. A person who installs, or causes to be installed, a new or replacement underground storage tank after 5 business days of the Department's receipt of the registration form, without first having received confirmation that the registration is complete, does so at his own risk. If it is determined that the facility was not installed in accordance with the regulations, the tank owner shall be required to retrofit the facility such that it is in conformance with the regulations.

F. When an emergency situation occurs, the time requirement of subsection B may be waived by the Department upon petition of a tank registrant if: 1) the registrant can demonstrate to the Department that an emergency situation

exists; and 2) the local fire department having jurisdiction has been notified by the registrant that the tank is being installed without the five (5) day notice due to an emergency situation.

G. For existing tanks, the information required for registration shall be submitted to the Department and a copy provided to the fire department having jurisdiction in accordance with this section on or before February 1, 1986. No person may operate, maintain or store oil in an underground oil storage facility after May 1, 1986, unless each underground oil storage tank at that facility has been registered with the Department and a copy of the registration materials has been received by the local fire department having jurisdiction.

H. Registrations shall be submitted on forms developed by the Department, which shall contain the following information:

1. The name, mailing address, and telephone number of the owner;
2. The name, mailing address, and telephone number of the operator;
3. The name, location, and telephone number of the facility. A description of the location of the facility must consist of a location map or a description sufficient for the Department to locate the facility on the most recent U.S. Geological Survey topographical map of the area;
4. The name, mailing address, and telephone number of an individual to contact with questions on the registration materials submitted;
5. The location of the facility relative to a sensitive geologic area, including: (a) whether a private water supply exists within 300 feet of the tanks; (b) if any person other than the tank owner or operator owns, operates, or utilizes any private water

supply within 300 feet of the tanks; (c) whether a public water supply exists within 1,000 feet of the tanks; and (d) whether the facility is located on a primary sand and gravel recharge area or significant ground water aquifer, as defined by this rule.

6. The size of each tank measured in gallons;
7. The type of tank(s) and piping, including the materials used for construction;
8. The type of product(s) stored in each tank;
9. For a new or replacement facility to be installed after May 1, 1986, the installer's name and certification number assigned by the Maine Board of Certified Underground Tank Installers;
10. For a new or replacement facility, a site drawing of the facility containing the location of all new or replacement tanks, including: (a) distance and direction measurements that are sufficient to locate all underground portions of the facility, (b) details of any secondary containment or monitoring measures as outlined by 38 M.R.S.A. Section 564(1)(C) and Section 5(A)(4) of this rule, for marketing and distribution facilities located in sensitive geologic areas, (c) locations of monitoring wells for tanks over 1,100 gallons used for on site consumption of oil, as required by 38 M.R.S.A. Section 565(1)(C) and this rule; and (d) all piping associated with the new or replacement facility.
11. The best estimate of the date of installation for each existing tank;
12. Any other information required by Federal law or regulation; and

13. Certification of the accuracy of the information by the tank owner or the owner's permanent full time employee. The certification cannot be signed by the installer or other subcontractor.

NOTE: 1984 amendments to Federal law (Subtitle I of the Resource Conservation and Recovery Act, Section 9002 et seq.) mandate a Federal underground tank notification program and specify informational requirements for that program. Registration forms are available from the Maine Department of Environmental Protection which meet all Federal and State informational requirements. A tank owner is not required to send a copy of the completed form to the U. S. Environmental Protection Agency.

I. The owner or operator of an underground oil storage facility used in the marketing and distribution of oil shall pay an annual fee to the Department of \$25 for each tank with a capacity less than or equal to 6,000 gallons and \$50 for each tank with a capacity in excess of 6,000 gallons located at the facility. The initial fee payment shall accompany the initial registration form. Annual fees thereafter shall be paid on or before January 1st of each calendar year.

J. Any person liable for the fee imposed by subsection I shall pay a \$10 late payment fee per tank in addition to the fee specified in subsection I, if the initial fee payment and registration form has not been submitted to the Department on or before February 1, 1986, but is submitted on or before May 1, 1986. Any person liable for the fee imposed by subsection I shall pay 3 times the fee specified in subsection I if the appropriate fee payment and registration form has not been submitted to the Department on or before May 1, 1986.

K. The owner or operator of an underground oil storage facility used for consumption on site by the owner or operator shall pay a fee of \$50 for each tank that is not registered by May 1, 1986.

L. It is the responsibility of the facility owner to register all tanks. Where the facility owner cannot be determined or is disputed, it shall be the responsibility of the property owner to register all facilities and tanks located on his property.

M. If the planned new or replacement tank or facility meets the definition of "hazardous activity" as stated in 38 M.R.S.A. Section 482(2-C) and is not exempted pursuant to Chapter 371, Section 1(G.G)(3) of the Department's Site Location of Development Rules, the completed registration materials will constitute acceptable preliminary notification to the Department for permitting as required by 38 M.R.S.A., Section 483(1).

N. The Department will assign a unique registration number to each facility and to each tank at a facility. These registration numbers shall be provided to the owner or operator and shall be used for annual re-registration and in all subsequent correspondence regarding registered facilities and tanks. The owner or operator shall post the registration number or certificate in a prominent location at the facility.

O. The owner or operator of an underground oil storage tank shall file an amended registration form with the Department and the local fire department having jurisdiction immediately upon any change in the information required pursuant to subsection H. No fee will be charged for filing an amended registration.

5. REGULATION OF UNDERGROUND OIL STORAGE FACILITIES USED IN THE MARKETING AND DISTRIBUTION OF OIL.

A. DESIGN AND INSTALLATION STANDARDS FOR NEW AND REPLACEMENT FACILITIES USED IN THE MARKETING AND DISTRIBUTION OF OIL

NOTE: Propane Storage Tanks are not regulated by this rule.

1. DESIGN REQUIREMENTS

a. All new and replacement tanks shall be constructed of fiberglass, cathodically protected steel, or other non-corrosive material approved by the Department. Piping shall be constructed of fiberglass, cathodically protected steel or other corrosion-resistant or non-corrosive materials which may be approved by the Department.

(i) It shall be the responsibility of the facility owner to demonstrate to the satisfaction of the Department that the materials are non-corrosive or corrosion resistant and meet or exceed the intended performance standards.

(ii) All new or replacement facilities shall be approved and constructed in accordance with the standards contained in the following:

Steel tanks - Underwriters Laboratories 58

Fiberglass tanks - Underwriters Laboratories 1316

Cathodically Protected Tanks - National

Association of Corrosion Engineers, RP-02-85

- Underwriters Laboratories Canada 5603.1 M

1982.

All new or replacement non-metallic piping shall be "UL listed." Cathodically protected piping shall be in conformance with National Association of Corrosion Engineers, Recommended Practices-02-85.

NOTE: Fiberglass clad steel tanks must be provided with an attached sacrificial anode or impressed current cathodic protection.

- (iii) Impressed current cathodic protection systems shall be designed according to the standards described in National Association of Corrosion Engineers Recommended Practice 02-85, and installed by a certified underground storage tank installer.

No used fiberglass or cathodically protected tanks or piping may be re-installed, unless the tank owner has supplied the Department with satisfactory documentation that the

manufacturer will warranty the tanks and piping against internal and external corrosion and structural failure for a minimum of ten (10) years, after which the tank shall be properly abandoned, in accordance with the requirements of Section 8 of this rule.

2. INSTALLATION REQUIREMENTS FOR NEW AND REPLACEMENT TANKS

- a. No underground oil storage facility or tank may be installed unless the entire facility has been registered in accordance with Section 4 of this rule.
- b. New and replacement tanks and facilities shall be installed in conformance with the requirements contained in Appendix D.
- c. Effective May 1, 1986, all new and replacement tanks and piping shall be installed by an underground oil storage tank installer who has been properly certified pursuant to Title 32 M.R.S.A., Chapter 105 and has paid the certification fee.
- d. No certified underground oil storage tank installer may install an underground storage tank, if the installer has been placed on inactive status or if the installer's certification has been suspended or revoked pursuant to 5 M.R.S.A., Section 10004 and 32 M.R.S.A., sections 10001-10015, and has not been reinstated.

- e. If a tank is replaced all associated piping not meeting the design requirements of this rule shall be replaced. Any replacement piping shall be designed and installed in accordance with this rule.
- f. The installation of underground tanks within three (3) feet of the bedrock surface shall require the installation of an impervious barrier such as concrete, synthetic liners or other material which is resistant to hydrocarbons and will be sloped to a 24 inch sump equipped with a monitoring well as illustrated in Figure 3. The barrier shall extend a minimum of 18 inches beyond the tank on all sides.
 - (i) This will require probing to a depth of three feet beyond the planned excavation depth with a backhoe, shovel, soil auger or other means so long as it may be determined that bedrock does or does not lie within three feet of the excavation required for proper bedding.
 - (ii) A vertical monitoring well shall be placed on top of the impervious surface and shall be monitored weekly in accordance with Section 5(B)(10) of this rule.
 - (iii) The well shall be installed in accordance with the specifications and requirements in Appendix F or G, except that vertical wells will be installed in the sump as illustrated in Figure 2.

- (iv) The requirement of an impervious barrier may be waived by the Department if the tank owner can document to the Department's satisfaction that the site has ground water above the bedrock surface which can be accurately monitored on a year round basis and that monitoring wells will be installed, monitored, and maintained according to this rule.

3. INSTALLATION REQUIREMENTS FOR NEW AND REPLACEMENT PIPING

- a. All underground piping shall be designed and installed in conformance to the requirements contained in Appendix E.
- b. All underground piping shall be constructed of fiberglass, cathodically protected steel or other non-corrosive materials which may be approved by the Department.
 - (i) It shall be the responsibility of the tank owner to demonstrate to the satisfaction of the Department that the materials are non-corrosive.

NOTE: Galvanized piping does not meet the requirement for corrosion protection of tanks and piping, and does not meet the criteria for cathodic protection as stated in the National Association of Corrosion Engineers, Recommended Practices 02-85.

- (ii) All new or replacement non-metallic piping shall be "UL Listed." Cathodically protected piping shall be constructed and installed in conformance with the

National Association of Corrosion Engineers,
Recommended Practices, Publication No. 02-85, as
amended.

- c. When a cathodic protection system is used to protect piping, a voltage reading shall be performed upon installation, and annually thereafter. Measurement shall be made in accordance with the requirements of Appendix A.
 - d. Product lines shall be installed in a single trench between the tank area and each pump island. Underground vent lines shall be installed in a single trench. All product and vent lines shall slope toward the tank area.
 - e. All new and replacement tank fill openings shall be installed with collection boxes or sumps with a capacity of three gallons or greater, which are sealed around the fill pipe and will collect spillage during delivery or with an automatic shutoff device or other device approved by the Department which will prevent overfills.
4. ADDITIONAL INSTALLATION AND MONITORING REQUIREMENTS FOR NEW AND REPLACEMENT TANKS WHICH ARE LOCATED IN SENSITIVE GEOLOGIC AREAS AND ARE USED FOR THE MARKETING AND DISTRIBUTION OF OIL
- a. In addition to the installation standards in Section 5(A)(1)-(3), all new and replacement facilities used for marketing and distribution that are located in a sensitive geologic area as defined in Section 3(JJ), shall also

comply with one of the following installation and monitoring requirements, unless otherwise exempted pursuant to the requirements of Section 5(A)(4)(b).

(i) Secondary containment, as defined in Section 3(II) of this rule, of all underground oil storage facility components.

(AA) All secondary containment systems must be equipped with a monitoring device which will provide for the detection of a leak or discharge from any portion of the primary containment structure.

(BB) All monitoring and secondary containment devices or structures must be installed, operated and maintained in accordance with the manufacturers recommendations and specifications.

(CC) Forms of secondary containment must be compatible with the product stored to allow for detection of any leak or discharge.

(ii) Continuous electronic monitoring as defined in Section 3(I) for free product using monitoring wells installed in the excavated area around the tank(s) and piping.

Monitoring well locations shall be placed such that a leak or discharge of oil from the tanks and piping will be detected as soon as possible.

NOTE: This option may not be suitable for sites where oil discharges have occurred previously, and all the product was not recovered.

(AA) Monitoring well locations shall comply with section 5(A)(4)(a)(iv).

(BB) Continuous electronic monitoring for free product shall be utilized in situations where high ground water conditions exist such that the water table is at or above the bottom of the tank or the monitoring wells must be installed at greater depths such that the ground water surface will be monitored.

(CC) All monitoring instruments shall be installed, operated and maintained in accordance with the manufacturer's recommendations and specifications.

(DD) Product pipe lines must be monitored for leakage.

(EE) Vertical monitoring wells shall be used in areas of high ground water. Where the ground water surface is less than 15 feet from the ground surface, the screened portion of the well shall extend a minimum of (5) five feet below the ground water surface at the time of installation.

Vertical monitoring wells shall be constructed in accordance with the specifications in Appendix F (An illustration is presented in Figure 1).

(FF) In areas of low ground water where the ground water surface is greater than 15 feet from the ground surface, monitoring wells shall be constructed with an impervious barrier in accordance with the specifications and requirements contained in Appendix G and Figure 2.

(iii) Continuous electronic monitoring for vapors in the unsaturated zone of all elements of the facility, using sufficient sampling points to detect a leak or discharge of oil from any point in the facility.

(AA) This monitoring option is to apply to all elements of the facility, piping and tanks. It is best suited to areas where the water table is significantly below the bottom of the tank excavation, but it can be used in areas where the water table is high. It does not require professional determination of water table elevation or water table gradients.

(BB) All monitoring components shall meet manufacturer's specifications and shall be installed according to manufacturer's recommendations. Sampling ports shall be located and installed according to manufacturer's recommendations, including at a minimum:

- (1) One sampling port within 5 feet of each pump or dispenser;
- (2) One sampling port at each piping joint and a sufficient number of sampling ports so that no piping run is more than 15 feet from a sampling port; and
- (3) One sampling port located at each end of the tank.

(CC) Limitations.

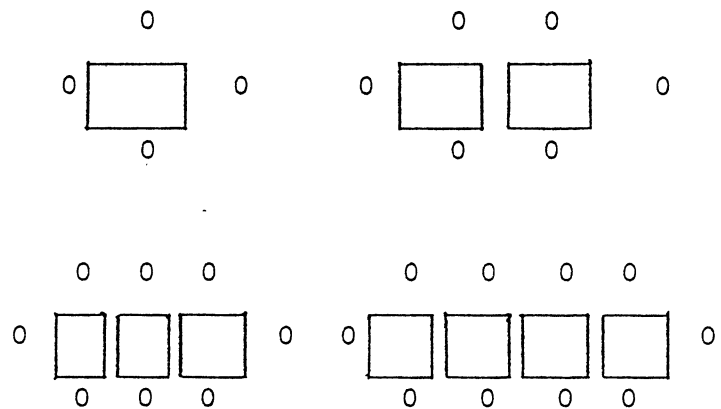
- (1) continuous electronic monitoring for vapors is suitable only for hydrocarbon compounds with boiling points below 110°C. This option does not adequately monitor for fuel oils or diesel oil;

(2) continuous electronic monitoring for vapors is not suitable for sites where previous discharges continue to cause high levels of hydrocarbon vapors in adjacent soils. This would result in frequent alarms and unnecessary leak investigations.

(iv) A reasonable number of monitoring wells located around the tank or around the perimeter of the facility, sampled and tested that are sufficient to detect any discharge of oil or contamination of ground water. The number and location of monitoring wells shall be sufficient to detect a leak or discharge from any portion of the underground storage facility.

(AA) The number and location of monitoring wells shall be determined by a Maine certified geologist with experience in hydrogeology, except that no fewer than two monitoring wells are required, one at either end of each tank installed. A site plan demonstrating the location of all monitoring wells, tanks, piping and dispensers with a legible stamp of the certifying geologist shall constitute proof of approval. Other acceptable options not requiring a certified geologist include:

- (1) Where the distance to ground water is within 15 feet of the ground surface, a large enough number of vertical monitoring wells must be installed to monitor the entire facility, including a minimum of four monitoring wells for each tank or where more than one tank is installed in the same continuous excavation the minimum number of monitoring wells shall be installed, as diagrammed below:



NOTE: Monitoring well screens must be installed such that the surface of the ground water will be monitored, allowing any discharged product which will float on the surface to enter the well. It is extremely important to meet all specifications as required in Appendix F.

All monitoring wells shall be installed and designed as specified in Appendix F.

- (2) Where the distance to ground water is greater than 15 feet from the ground surface, a monitoring well shall be installed in conjunction with a sloped impervious material such as concrete, synthetic liners or other approved material which is resistant to exposure to hydrocarbons, as illustrated in Figure 2 such that product leaked or discharged will be detected in the monitoring well. One well shall be installed for each tank. All monitoring wells and barriers shall be designed and installed in accordance with the requirements and specifications in Appendix F and G of this rule.

- (3) Ground water elevations shall be determined by a licensed soil scientist, a certified geologist or hydrologist, other documentation of water elevations which the Department of Environmental Protection determines to be accurate and reliable.

(BB) Product pipe lines shall be equipped with either a single check valve or a product line leak

detection device in accordance with the requirements of Appendix E.

(CC) All monitoring wells shall be sampled and all samples shall be handled according to the requirements of Appendix H. The results shall be recorded in a log book according to the requirements contained in Section 5(B)(10).

EXEMPTION

- (i) The monitoring requirements as set forth in 5(A)(4)(a) above shall not be invoked where the proximity of an underground storage tank to a private water supply which is owned, operated or utilized by a tank owner or operator, is the only criterion for designation as a sensitive geologic area.
- (ii) The owner of an underground oil tank may apply to the Board of Environmental Protection for an exemption from the monitoring requirements as set forth in 5(A)(4)(a). The Board may grant an exemption only when it finds that the location of the tank to be installed is over an aquifer which is already polluted by oil, hazardous substances, or other pollutants such that the aquifer is polluted and no unreasonable additional harm to public health and safety or to the environment can

occur. The burden of proof of demonstrating that the aquifer is polluted and that no additional harm to public safety, health or to the environment can occur shall be the responsibility of the tank owner.

Circumstances where the facility itself is responsible for the contamination are not eligible for an exemption under this section.

B. MONITORING AND OPERATING PROCEDURES FOR EXISTING, NEW AND REPLACEMENT FACILITIES AND TANKS USED IN THE MARKETING AND DISTRIBUTION OF OIL.

1. DAILY INVENTORY REQUIREMENTS.

The owner or operator of facilities used for the marketing and distribution of oil shall maintain and reconcile daily inventory for each day that oil is being added to or withdrawn from the facility or tank.

a. Daily Inventory includes all of the following:

- i. The daily measurement of product and water levels in each tank for each day product is added or removed. Measurement of product levels may be made by a stick gauge reading. Water level measurements may be made by using water paste and a gauge stick. Electronic or

mechanical level measuring devices accurate to at least one-quarter inch (1/4") which measure product and water levels are also acceptable.

ii. The measurement of product levels, before and after any deliveries.

iii. A log book shall be kept at the facility which includes each measurement and the initials of the individual taking and recording the levels and the actual product and water level measurements.

b. Daily reconciliation of tank and pump meter readings shall be performed to determine daily loss or gain of product. The reading of pump meter readings and product delivery receipts shall not in itself constitute adequate inventory records.

c. All inventory data shall be summarized monthly and shall include the total cumulative loss or gain for the preceeding month.

NOTE: See Appendix I for an example of a daily inventory data sheet.

d. All inventory data and summaries shall be retained for a period of at least 3 years either at the facility or at the facility owner's place of business and made available to the Department's employees or authorized representatives and to municipal officials upon request.

2. STATISTICAL INVENTORY ANALYSIS

- a. The owner of each tank used for the marketing and distribution of oil shall be responsible for having an annual statistical inventory analysis performed for each of his tanks, and reporting the results of the analysis to the Department on or before July 1, 1986 for those facilities located in a municipality whose first letter is A-L and before October 1, 1986 for those facilities located in a municipality whose first letter is M-Z and on or before that date annually thereafter. Such an analysis shall include an evaluation of the various sources of error present in daily inventory records, including the following.

- (i) identifying and removing large measurement errors;
- (ii) identifying unrecorded additions or removals of oil;
- (iii) detecting errors in metering oil from the tank;
- (iv) estimating the potential for temperature differential to induce spurious trends or conceal real trends;
- (v) establishing that residual errors contain no systematic components and reflect on the normal errors of measurement;
- (vi) evaluating the quality of the data provided and the adequacy of operator procedures to detect leaks if present;

- (vii) identifying persistent daily physical loss which could be consistent with leakage; and
- (viii) determining values and dates for any delivery errors and any unexplained one time gains or losses.

b. The report of the results of the analysis shall also contain the following facility information:

- (i) Name of the facility;
- (ii) Municipality in which the facility is located;
- (iii) Name of the owner;
- (iv) Registration numbers assigned by the Department to the facility and to the tanks; and
- (v) Certification by tank owner and the agent conducting the analysis that the results are true and accurate to the best of his or her knowledge.

c. The requirement for statistical inventory analysis shall only be met if the inventory records submitted are capable of being analyzed. The following attributes shall constitute cause for invalidation of an analysis:

- (i) More than ten (10) very large, clearly erroneous measurements of inventory-on-hand;

- (ii) An average measurement error of inventory-on-hand in excess of thirty (30) gallons;
- (iii) More than five (5) large unexplained removals or additions of product;
- (iv) Failure to take daily readings of inventory-on-hand;
- (v) Excessive data recording errors; or
- (vi) Evidence of the use of an incorrect conversion chart or persistent faulty gauging.

- d. All tank owners shall maintain at the owner's place of business for a period of 3 years the results of all annual statistical inventory analysis for each underground storage tank. These results shall be made available to the Department of Environmental Protection employees or authorized representative and to municipal officials upon request.

3. MONITORING REQUIREMENTS FOR GALVANIC CATHODIC PROTECTION SYSTEMS

- a. All cathodically protected tanks and piping shall have an accurate structure to soil potential reading performed by a qualified person upon installation and annually thereafter.
- b. When underground work is performed at the site, the cathodic protection shall be monitored 6 to 12 weeks after such work has been completed, to assure that the system is functioning properly.

- c. Monitoring shall be performed in accordance with the requirements of Appendix A.
- d. The results of all monitoring shall be kept in a logbook at the tank owner's place of business or at the facility.

4. MONITORING REQUIREMENTS FOR IMPRESSED CURRENT CATHODIC PROTECTION SYSTEMS

- a. A monthly inspection shall be performed of the rectifier meter on all facilities utilizing the impressed current system of corrosion protection. All readings shall be recorded in a log book which must be kept at the owner's place of business or at the facility for a period of at least 3 years.
- b. A person qualified to measure the structure-to-soil and structure-to-structure potentials, the rectifier voltage and current output shall conduct an on-site test and inspection at least once per year.

5. PRECISION AND HYDROSTATIC TESTING

- a. The Department may require precision testing as defined in this rule of all tanks, and hydrostatic testing in accordance with the requirements of Appendix B of all piping at a facility showing evidence of a possible leak, as defined in Section 5(B)(6) below.

6. EVIDENCE OF A LEAK

a. Evidence of a possible leak shall include, but not be limited to, any one of the following:

- (i) A positive analysis for hydrocarbons in a monitoring well or private or public drinking water supply;
- (ii) Any sheen or other visual or olfactory evidence of product found in a monitoring well;
- (iii) Any unexplained loss or gain of 0.5 percent of the through put of each storage system over a 30 day period, as indicated by the recording and reconciliation of daily inventory records;
- (iv) Failure of a hydrostatic piping test, as defined in Section 3(S), which indicates a pressure drop of more than 5 psig per minute. Hydrostatic piping tests shall be performed in accordance with the requirements of Appendix B;
- (v) Failure of a precision test as defined in Section 3(EE) which indicates a loss or gain of greater than .05 gallons/hour;
- (vi) Unexplained losses detected through a statistical analysis of inventory records or an indication in the statistical inventory analysis that the inventory data provided were insufficient to perform an accurate analysis;

- (vii) The excessive accumulation of water in a tank, evidenced by a rise in water level of greater than 1/2 inch for an 8 to 12 hour period;
- (viii) Loss of pressure in a remote pumping system equipped with a line leak detection device;
- (ix) Pump hesitation, vibration, meter skipping or air elimination, attributable to a loss of prime for product lines which operate under a suction system; or
- (x) The sounding of any audible alarms associated with electronic monitoring devices.

NOTE: Any person who discovers oil contaminated soil or water or other evidence that a discharge has occurred, is required to report the contamination to the Department of Environmental Protection. To report a spill call Toll Free 1-800-482-0777.

7. REPORTING AND REMOVAL REQUIREMENTS

- a. A tank owner or operator shall report to the Department as soon as possible but no later than within 24 hours any of the indications of a possible leak or discharge of oil including but not limited to those listed in Section 5(B)(6).
- b. Any person discharging or suffering the discharge of oil, petroleum products or their by-products into or upon any coastal waters, estuaries, tidal flats, beaches and lands

adjoining the seacoast of the State, or into or upon any lake, pond, river, stream, sewer, surface water drainage, ground water or other waters of the State or any public or private water supply or onto lands adjacent to, on, or over such waters of the state shall immediately undertake to remove that discharge to the Department's satisfaction.

- c. Any person who violates any provision of the laws administered by the Department or the terms or conditions of any order, regulation, license, permit, approval or decision of the Board, or knowingly makes any false statement, representation or certification shall be subject to all criminal and civil penalties for each day of the violation, as outlined in Title 38 M.R.S.A., Section 349(1)-(6).

NOTE: Title 38, M.R.S.A., Section 349(2) provides that any person who violates any provision of the laws or regulations administered by the Department shall be subject to a civil penalty, payable to the State, of not less than \$100 nor more than \$10,000 for each day of that violation.

- d. Pursuant to Title 38 M.R.S.A., Section 568 (4), any person who causes or is responsible for a discharge to groundwater shall not be subject to any fines or civil penalties for the discharge if that person promptly reports and removes that discharge in accordance with the rules and orders of the Department and the Board.

8. FINANCIAL RESPONSIBILITY REQUIREMENTS

- a. The owner or operator of a new, replacement or existing tank or facility shall demonstrate to the Department the owner's or operator's financial responsibility for taking corrective action and for compensating third parties for bodily injury and property damage caused by sudden and nonsudden accidental discharges from an underground oil storage facility or tank pursuant to this section.
- b. Third Party Liability Insurance. Where an owner or operator of an underground oil storage facility is relying on third party damage insurance to demonstrate financial responsibility, they shall obtain and maintain liability coverage in accordance with the following criteria:
 - (i) Coverage must compensate 3rd parties for bodily injury and property damage caused by sudden and non-sudden accidental discharges;
 - (ii) Coverage must be in the amount of at least \$500 thousand dollars per occurrence with an annual aggregate of at least \$1 million;
 - (iii) Coverage must be exclusive of legal defense costs;
 - (iv) Bankruptcy or insolvency of the insured shall not relieve the insurer of its obligations under the policy;

- (v) The insurer must be liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any such payment made by the insurer;
- (vi) Within sixty (60) days of receipt of a request by the Department the insurer shall furnish a signed duplicate original of the policy and all endorsements;
- (vii) A copy of the notice of cancellation of the insurance, whether by the insurer or the insured, shall be sent to the Department such that it is received at least thirty (30) days prior to the effective date of cancellation of the policy;
- (viii) If a liability insurance policy is written as a claims-made policy, an endorsement must provide for a discovery period of at least twelve (12) months beyond the date of expiration or cancellation of the policy.

9. REPLACEMENT REQUIRED AS A RESULT OF A LEAK

- a. If replacement or removal is required as a result of a corrosion-induced leak in an unprotected steel tank, the owner or operator of the facility may either replace all other tanks and piping at that facility not meeting the design and installation standards set forth in section 5(A) of this rule or comply with all of the following:

- (i) Remove all bare steel and asphalt-coated steel tanks at the facility that are more than 20 years old. (For the purposes of this subsection, where the age of a tank cannot be reasonably determined, all tanks will be assumed to be 15 years old as of May 1, 1986).

- (ii) Perform a statistical inventory analysis of the entire facility and submit the results of that analysis to the Department, in accordance with the requirements of Section 5(B)(2). If a statistical inventory analysis of the entire facility has been performed within 60 days prior to the required replacement, then the results of that analysis may be submitted to the Department instead. If the results of the statistical inventory analysis for any portion of the facility indicates evidence of a leak or that the data are not sufficiently reliable to make a determination that the facility is or is not leaking according to the requirements of Section 5(B)(2)(c), the Department may require that all remaining tanks and piping at the facility be precision tested, unless it can be demonstrated that the same tanks and piping passed a precision test meeting Department specifications within the previous six (6) months; and

- (iii) Install no fewer than two (2) ground water monitoring wells, as deemed necessary by the Department to monitor the facility, unless all remaining tanks and piping at the facility are shown to have been installed in accordance with the standards outlined in this rule. The monitoring well network installed shall be capable of detecting a leak from any portion of the facility not meeting design and installation specifications stated in this rule. These wells shall be installed in accordance with the specifications in Appendix F or G, as applicable.
- b. Results of all precision tests conducted pursuant to (ii) above, shall be submitted to the Department, and all tanks and piping found to be leaking shall be removed pursuant to section 8 of this rule.

10. SAMPLING OF MONITORING WELLS

- a. Where a monitoring well has been installed at an underground oil storage facility. The owner or operator must sample that well weekly by withdrawing a sample from each monitoring well on site and examining the sample visually for a sheen or other evidence of oil, and by smelling the sample for the odor of "oil." Weekly sampling shall be performed in accordance with the procedures required in Appendix H.

- b. Records of each sampling shall be maintained in a log book at the facility, the log book shall include the date and time of sampling, the initials of the person performing the sampling, and a record of the inspection of all monitoring well samples.

The log book shall be available upon request to any Department of Environmental Protection employee, agent or authorized representative and to any municipal official.

NOTE: A sample log sheet is provided in Figure 3.

- c. Upon discovery of any evidence of a possible leak as defined in Section 5(B)(6) of this rule, the owner of the tank shall cause notice to be given to the Department of Environmental Protection as soon as possible but not later than 24 hours from the time of discovery. The tank owner shall then obtain samples for laboratory analysis in accordance with the procedures required below in Section 5(B)(10(d) and Appendix H. The frequency of analysis shall be as stated in section 5(B)(10)(f), below.

To Report a Leak, call Toll Free, 24 Hours Daily - 1-800-482-0777

- d. Where laboratory analysis is required, all monitoring wells shall be sampled and the samples analyzed for the presence of hydrocarbons by a laboratory approved for hydrocarbon testing by the Department of Human Services. The monitoring wells shall be sampled and all samples shall be handled in conformance with the requirements contained in Appendix H. The results of all hydrocarbon analysis shall be maintained at the facility for a period of not less than three (3) years. The detection of hydrocarbons in concentrations which are greater than 10 ppb shall be reported to the Department of Environmental Protection as soon as possible, but not later than 24 hours from the time of discovery.

Where the installation of monitoring wells is required by this rule at new facilities, where tanks have not previously been installed or at replacement facilities where no evidence of a leak exists, a sample from each monitoring well must be analyzed for hydrocarbons according to following frequency:

- (i) before the facility begins operations;
- (ii) upon evidence of a leak; and
- (iii) when the analytical results are positive for hydrocarbons at a concentration which is higher than the background concentration as determined pursuant to (i) above, and the leak or discharge has been cleaned up to the satisfaction of the Department, each monitoring well shall be sampled

and analyzed quarterly for a period of at least one (1) full year (4 additional tests) upon which the testing will be suspended if the testing results are equal to or lower than the background concentration, or if an alternative schedule is approved by the Department of Environmental Protection.

- f. Where the installation of monitoring wells is required by this rule or where laboratory analysis is required, at an existing facility as a result of a leak or discharge, a sample from each required monitoring well shall be analyzed, as soon as possible after the discharge has been cleaned up to the satisfaction of the Department. Sample analysis for each monitoring well shall be performed at the same frequency as required in (iii) above. The benchmark concentration shall be the results from the first analysis of samples taken after the cleanup has been completed.

NOTE: Increasing or declining trends in hydrocarbon concentrations shall be considered by the Department when approving alternative schedules for hydrocarbon analysis.

11. RELINING OF EXISTING FACILITIES

- a. Existing tanks may be relined provided that the tank has passed a precision test and is free of perforations, except that existing fiberglass tanks which have failed may be relined or repaired if the cause of the failure will be

completely repaired to the satisfaction of the Department and a warranty is provided by the person performing the repairs. The warranty shall be for a minimum of ten (10) years and shall warranty the tanks against internal and external corrosion and structural failure. Upon expiration of the warranty the tank shall be properly abandoned pursuant to the requirements contained in Section 8 of this rule.

b. The following requirements shall also apply to relining activities.

(i) After relining, fiberglass tanks must pass a precision test.

(ii) The material which is used as a liner must be compatible with the product to be stored in the tank.

(iii) The lining procedure must be performed in accordance with the procedures outlined in American Petroleum Institute Recommended Practices No. 1631.

(iv) Piping shall not be relined.

6. REGULATION OF UNDERGROUND OIL STORAGE FACILITIES USED FOR THE CONSUMPTION ON THE PREMISES OR BY THE OWNER OR OPERATOR.

NOTE: No person shall install an underground storage tank used to store heating oil prior to May 1, 1986, unless that person is a Master Oil Technician, or a journeyman working under the supervision of a Master Oil Technician, licensed by the Oil and Solid Fuel Board, pursuant to Title 32 M.R.S.A., Chapter 33 and rules administered by the Oil and Solid Fuel Board.

A. APPLICABILITY.

1. These rules shall apply to all underground oil storage facilities that are used for consumption on the premises or by the owner or operator, regardless of size, as defined in Section 3.P of this rule.

B. DESIGN REQUIREMENTS FOR NEW AND REPLACEMENT TANKS USED FOR CONSUMPTION ON THE PREMISES.

1. The installation of new or replacement tanks constructed of bare steel or asphalt coated steel is prohibited.
2. All new and replacement tanks shall be constructed of fiberglass or cathodically protected steel, except that tanks installed temporarily at a construction facility as defined in Section 3(H), may be constructed of fiberglass clad steel provided that the tanks are fully inspected prior to being put into service and all cracking and chipping of the exterior coating is repaired in accordance with manufacturers recommendations.
 - (i) An owner or operator of a construction facility may request permission from the Department in writing to operate and maintain the facility for twelve (12) additional months, for the purpose of supplying oil to equipment used during construction activities. The request must be received prior to nine months from the date the facility was installed.

3. All new or replacement facilities shall be approved and constructed in accordance with the standards contained in the following:

Steel tanks - Underwriters Laboratories 58

Fiberglass tanks - Underwriters Laboratories 1316

Cathodically Protected Tanks - National Association of Corrosion Engineers, RP-02-85 - Underwriters Laboratories Canada 5603.1 M 1982.

All new or replacement non-metallic piping shall be "UL listed."

Cathodically protected piping shall be in conformance with National Association of Corrosion Engineers, Recommended Practices-02-85.

NOTE: Fiberglass clad steel tanks must be provided with an attached sacrificial anode or impressed current cathodic protection.

4. No used fiberglass or cathodically protected tanks or piping may be re-installed, unless the manufacturer has supplied the Department with documentation that the manufacturer will warranty the tanks or piping against internal and external corrosion and structural failure, for a period of at least ten (10) years, after which the tank(s) or piping must be properly abandoned in accordance with the requirements of Section 8 of this rule.

5. Existing tanks may only be relined in accordance with the requirements contained in Section 5(B)(11).

C. INSTALLATION REQUIREMENTS FOR NEW AND REPLACEMENT TANKS USED FOR CONSUMPTION ON PREMISES

1. All tanks shall be installed in conformance with the requirements contained in Appendix D of this rule.
2. Effective May 1, 1986, no person may install an underground storage facility unless that person is a certified underground oil storage tank installer.
3. No underground oil storage tank may be installed unless the facility has been registered in accordance with Section 4 of this rule.
4. No certified underground oil storage tank installer may install an underground storage tank if the installer has been placed on inactive status or if the installer's certification has been suspended or revoked pursuant to 32 M.R.S.A., Section 10015, and 5 M.R.S.A., Section 10004, and has not been reinstated.
5. The installation of monitoring wells is required for new and replacement facilities with a capacity in excess of 1,100 gallons where physically or technically practicable. The presumption is

that the installation of monitoring wells is physically and technically practicable, unless the owner can affirmatively demonstrate otherwise, to the Department's satisfaction.

- a. Where the distance to ground water is within fifteen (15) feet of the ground surface, a minimum of two (2) vertical monitoring wells meeting the requirements and specifications contained in Appendix F shall be installed, one on either end of each tank; or
- b. Where the distance to ground water is greater than fifteen (15) feet of the ground surface, one vertical monitoring well and an impervious barrier meeting the requirements specified in Appendix G shall be installed for each tank.
- c. Groundwater monitoring wells shall not be required where double wall tanks equipped with interstitial space monitors are utilized. Double walled tanks shall be installed, operated, and maintained in accordance with the manufacturer's specifications and recommendations. Where the tank is not equipped with automatic monitoring, the interstitial space shall be monitored weekly and the results recorded in a log book that will be at the facility and available to the Department's employees or authorized representatives and to municipal officials at the facility. The log book shall include the date, time, and results of each monitoring event, plus the initials of the individual doing the monitoring.

d. Where monitoring wells are required by this rule, the monitoring wells shall be sampled weekly and the results recorded in a log book pursuant to Section 5(B)(10). Where monitoring wells are required at a new or replacement facility or at a facility where there is evidence of a leak as contained in Section 5(B)(6), samples shall be obtained and analyzed for hydrocarbons according to the requirements of Section 5(B)(10)(c)-(f).

6. Where monitoring wells have been or are required to be installed, fill pipes shall be installed with collection boxes or sumps with a capacity of three (3) gallons or more, which are sealed around the fill pipe and will collect spillage during delivery, or an automatic shutoff device or other device approved by the Department which will prevent overfills.

D. PIPING REQUIREMENTS FOR NEW AND REPLACEMENT FACILITIES USED FOR CONSUMPTION ON THE PREMISES BY THE OWNER OR OPERATOR.

1. All underground piping shall be designed and installed in conformance with the requirements contained in Appendix E.
2. All underground piping shall be cathodically protected against corrosion, constructed of non-corrosive material, steel clad with a non-corrosive material, or designed in such a manner to prevent the release or threatened release of any stored substance. If a cathodic protection system is used, it shall be monitored and

maintained in accordance with Section 5(B)(3) or (4) of this rule. All cathodic protection monitoring shall be performed according to the requirements contained in Appendix A of this rule.

3. Product lines for motor fuels shall be installed in a single trench between the tank area and the pump island. Similarly, underground vent lines shall be installed in a single trench. All lines should slope toward the tank area.
4. If a tank is replaced all associated piping not meeting the design requirements of this rule shall be replaced. Any replacement piping shall be designed and installed in accordance with this rule.
5. Piping may not be re-lined.

E. TESTING AND REPORTING REQUIREMENTS FOR EXISTING, NEW AND REPLACEMENT FACILITIES USED FOR CONSUMPTION ON THE PREMISES OR BY THE OWNER OR OPERATOR.

1. The owner or operator shall report any evidence of a leak as defined in Section 5(B)(6) of this rule to the Department within 24 hours from the time of discovery of the leak or discharge.

NOTE: To report a leak or discharge at any time 24-hours a day, 7 days a week call 1-800-482-0777.

2. Existing underground oil storage tanks that are used for storing motor fuels for consumptive use shall be precision tested for leaks when they are 20 years old, and every 5 years thereafter, except that the owner or operator may elect to install monitoring wells pursuant to Section 6(C)(5)(a-c) of this rule as an alternative to precision testing. Tanks shall be precision tested or monitoring wells shall be installed within 60 days after the tank becomes 20 years old, unless the owner has applied for and received written permission from the Department of Environmental Protection to extend the time schedule for completion of this requirement.

NOTE: Title 38, Section 565(2)(B) allows a tank owner to presume the tank to be 15 years old as of May 1, 1986, if, after reasonable inquiry has been made, the age of the tank is unknown.

3. Where a monitoring well is required, the owner or operator shall design, install, monitor, keep records and sample all monitoring wells according to the requirements of Section 5(B)(10)(a, b, c, d, and f only) of this rule.
4. All precision and hydrostatic testing results shall be submitted to the Department by the tank owner.

5. All tanks which are precision tested as leaking at a rate of 0.05 gallons or more per hour, at a pressure of 4 pounds per square inch gauge at the bottom of the tank, shall be considered leaking and shall be repaired to the satisfaction of the Department. No bare or asphalted coated steel tanks or piping may be structurally repaired for use as an underground oil storage facility.
6. All galvanic cathodic protection systems shall have an accurate structure to soil potential measurement performed by a qualified person upon installation and annually thereafter. When underground work is performed at the site, the cathodic protection system shall be monitored within 6 to 12 weeks after such work has been completed, to assure that the system is functioning properly. Monitoring shall be performed in accordance with the requirements of Appendix A.
7. If an impressed current cathodic protection system is installed, the owner or the tank operator shall verify at least once per month that the system is operative, and a qualified person shall measure the structure-to-soil and structure-to-structure potentials, the rectifier voltage and current output, and conduct an on-site test and inspection according to the standards described in National Association of Corrosion Engineers Recommended Practice 02-85, as amended, at least once per year.

7. REGULATION OF FACILITIES FOR THE UNDERGROUND STORAGE OF WASTE OIL

A. APPLICABILITY

1. These rules shall apply to any person other than a waste oil dealer who stores or proposes to store waste oil in underground tanks.
2. Waste oil dealers are subject to the rules set forth in Chapter 860 of the Department's Regulations (Waste Oil Management Rules).
3. All tanks and associated piping used for the underground storage of waste oil shall be registered in accordance with Section 4 of this rule. For the purpose of registration, waste oil tanks shall be subject to fees as provided for in Section 4 of this rule.
4. Where an underground waste oil storage tank is used in the marketing and distribution of oil, the liability insurance coverage for the facility must extend to all underground waste oil storage tanks and associated piping.
5. The terms of the insurance shall be identical to those outlined in Section 5(B)(7) of this rule.

B. DESIGN AND INSTALLATION STANDARDS FOR NEW AND REPLACEMENT TANKS AND ASSOCIATED PIPING:

1. The installation of new and replacement tanks constructed of bare steel or asphalt coated steel is prohibited;
2. Effective May 1, 1986, all new and replacement tanks shall be installed by an underground oil storage tank installer who has been properly certified pursuant to 32 M.R.S.A., Chapter 105;
3. New and replacement waste oil tanks and associated piping located in sensitive geologic areas shall be equipped with secondary containment in accordance with Section 5(A)(4)(a)(i) of this rule;
4. All installations of new and replacement waste oil tanks, which are not located in a sensitive geologic area, regardless of capacity, shall be equipped with monitoring wells. These wells shall be installed in accordance with the technical specifications set forth in Section 6(C)(5)(a), (b) & (c) of this rule and Appendix F or G.
5. New and replacement underground waste oil tanks shall not be located in the following areas:
 - a. beneath a building or other permanent structure;

b. within 100 feet of an existing public or private drinking water supply, except where the only water supply within 100 feet is owned, operated or utilized solely by the owner or operator of the tank; or

c. within 25 feet of a classified body of surface water.

6. New and replacement waste oil tanks and associated piping located in areas where bedrock is within three (3) feet of the excavation required for proper bedding shall be installed in accordance with the requirements of Section 5(A)(2)(f) and Appendix F and G.

C. TESTING AND REPORTING REQUIREMENTS FOR EXISTING, NEW AND REPLACEMENT FACILITIES

1. All cathodically protected tanks must be monitored in accordance with Section 5(B)(3) and (4), and Appendix A of this rule.
2. Monitoring devices on all tanks equipped with secondary containment must be monitored at least weekly in accordance with manufacturer's specifications.
3. Monitoring wells associated with underground waste oil tanks shall be sampled weekly in accordance with the requirements of Section 5(B)(10)(a)-(c). The samples shall be inspected for visual and olfactory evidence of waste oil.

4. Monitoring wells associated with underground waste oil tanks shall be sampled and analyzed for hydrocarbons by a laboratory approved by the Department of Human Services for hydrocarbons in accordance with the schedule contained in Section 5(B)(10)(d)-(f) and Appendix H of this rule.

5. The owner or operator shall report promptly upon discovery to the Department any evidence of a leak, as defined in Section 5(B)(6) of this rule, or discharge of waste oil. Under no circumstances shall the report be received later than 24 hours from the time of discovery of the leak or discharge.

NOTE: To report a leak or discharge at any time, 24 hours a day, 7 days a week, call 1-800-482-0777.

6. Upon determination of evidence of a leak, the Department may require precision testing or excavation of waste oil tanks, as necessary.

D. ABANDONMENT OF UNDERGROUND WASTE OIL STORAGE TANKS AND ASSOCIATED PIPING.

1. Underground waste oil storage facilities shall be replaced or abandoned within 60 days of when the age of the tank exceeds twenty (20) years or upon the date on which the warranty expires. If the age of the tank cannot be reasonably determined, the tank will be presumed to be 15 years old as of May 1, 1986.

2. Underground waste oil storage tanks and associated piping shall be abandoned in accordance with the requirements of Section 8 of this rule.

8. ABANDONMENT OF UNDERGROUND OIL STORAGE FACILITIES AND TANKS.

A. TEMPORARILY OUT OF SERVICE FACILITIES AND TANKS

1. All underground oil storage facilities and tanks that have been, or ARE intended to be, taken out-of-service for a period of more than twelve (12) months shall be properly abandoned unless the tank owner has received written permission from the Department of Environmental Protection to remain temporarily out of service in accordance with the requirements of Section 8(A) of this rule.
2. A tank owner may apply in writing for approval to allow a facility to remain temporarily out of service when the facility will be out of service for more than twelve (12) months. Written approval may only be granted by the Department of Environmental Protection for a period of time not to exceed twelve (12) months when:
 - a. The facility is not leaking;
 - b. All product with the exception of the bottom 4 to 6 inches has been removed from the facility;
 - c. The facility shall be precision tested prior to being returned to service; and
 - d. The facility has been designed and installed in accordance with this rule.

B. ABANDONMENT BY REMOVAL

1. Tanks or facilities which have been out of service for twelve (12) months must be removed within sixty (60) days unless a written request has been made and has not been acted upon or unless written permission has been granted by the Department of Environmental Protection pursuant to Section 8(A) or 8(C).
2. Removal of tanks and facilities shall be conducted in sequence in accordance with the requirements contained in Appendix J.
3. If underground oil storage tanks which have been removed are stored, the following provisions shall apply:
 - a. Areas chosen for storage shall not be accessible to the general public.
 - b. Gas free tanks may be stored with unplugged openings. If openings are to be tightly plugged, screwed plugs shall be used and one plug shall have a 1/8 inch vent hole to prevent the tank from being subjected to an excessive pressure differential caused by extreme temperature changes.
 - c. All stored underground oil storage tanks shall be labelled with the information noted in Section 8(B)(6)(C).
 - d. Any scale or sludge released by the tank prior to and during storage shall be disposed of in accordance with Chapter 851 of Maine Hazardous Waste Management Rules.

4. If underground oil storage tanks which have been removed are sold or reused, the following provisions shall apply:

- a. Bare steel and asphalt coated steel tanks shall not be re-installed for use as an underground storage facility;.
- b. Fiberglass and cathodically protected tanks or piping may be re-installed, provided that the tank owner has supplied the Department with satisfactory documentation that the manufacturer will warranty the facility for a period of at least ten (10) years for internal and external corrosion and structural failure, after which the tanks or piping shall be properly abandoned pursuant to this Section. A written statement attesting to the validity of the warranty, signed by the tank manufacturer, and provided to the Department constitutes the only proof of warranty coverage.
- c. All transactions shall be accompanied by a bill of sale indicating the former use of the tank. The bill of sale shall contain the following warning:

Tank Has Contained Leaded Gasoline
(or Flammable Liquid)¹
Not Gas-Free
Not Suitable for Food or Drinking Water

1. Use applicable designation.

- d. The tank shall be clearly marked with the notice stated in subparagraph c above, in legible letters not less than one (1) inch high, regardless of the condition of the tank.

5. The following provisions shall apply to the disposal of used underground oil storage tanks:

- a. The only acceptable means of disposal are: (a) sale to a junk or scrap dealer; or (b) disposal at a site approved by the Department for the disposal of used underground oil storage tanks.
- b. Tanks which have been used to store a Class I liquid, shall be gas-freed using one of the procedures as required in Appendix J, Section 5. The tank shall be punctured with a sufficient number of holes to render it unfit for further use.
- c. All tanks to be disposed, regardless of condition, shall be labelled with the following information:

Tank Has Contained Leaded Gasoline
(or Flammable Liquid)¹
NOT GAS FREE
Not Suitable for Food or Drinking Water

1. Use applicable designation.

C. ABANDONMENT BY FILLING IN PLACE

1. Abandoned facilities and tanks shall be removed, except where the owner can demonstrate to the Department that removal is not physically possible or practicable because the tank or other component of the facility to be removed is either:
 - a. Located beneath a building or other permanent structure which cannot be practically replaced;
 - b. Of a size and type of construction that it cannot be removed;
 - c. Inaccessible to heavy equipment necessary for removal; or
 - d. Positioned in such a manner that removal would endanger the structural integrity of nearby tanks.
2. A facility or tank owner may apply to the Board for a variance to abandon a facility or tank in place rather than abandon the tank or facility by removal. The Board may grant such a variance request if it finds that:
 - a. Abandonment by removal is not possible or practicable due to circumstances other than those listed in paragraph 1 above;
 - b. The procedures outlined in Appendix K for abandonment in place will be followed in sequence; and
 - c. The granting of a variance shall not pose a threat to a private or public drinking water supply or the quality of ground water, and is consistent with the intent of this rule.

D. NOTIFICATION REQUIREMENTS

1. The owner or operator of a facility or tank which is to be abandoned shall notify the Department and the local fire department having jurisdiction. This notice shall be filed in writing at least ten (10) days prior to abandonment, except that when ownership of the facility or tank is unknown, the current property owner shall be responsible for compliance with the requirements of this section. This notice shall include:
 - a. The name, mailing address, and telephone number of the owner;
 - b. The mailing address and location of the facility;
 - c. The size(s) of tank(s) to be abandoned or taken out-of-service;
 - d. The type(s) of products(s) most recently stored in each tank;
 - e. The registration number of the facility and tank(s) if registered under this rule;
 - f. If abandonment in place is planned, the criterion(ia) used for justifying abandonment in place, as listed in Section 8(C)(1), above;
 - g. The approximate age of the tank, if known; and
 - h. The date upon which the facility or tank is to be removed or when a variance has been granted pursuant to section 8(C) of this rule, the date on which the tank or facility will be properly abandoned on site.

3. The tank owner shall keep a permanent record of the tank location, the date of abandonment, and the method of conditioning the tank for abandonment.
4. The tank owner shall be responsible for attaching to the deed of the property on which the tank is located a notice that an underground oil storage tank which has been abandoned in place pursuant to Section 8(C). exists on the property. The deed notation shall be executed within 30 days of completion of the abandonment.

9. SEVERABILITY

Should any provision of this rule be declared invalid or ineffective by a court decision, the decision shall not invalidate any other provision of this rule.

Appendix A

REQUIREMENTS FOR CATHODIC PROTECTION MONITORING

1. All measurements shall be made by placing a saturated copper/copper sulfate reference electrode in direct contact with the soil electrolyte.
2. The copper/copper sulfate electrode shall be placed over the center line of each tank and each piping run.
3. All measurements shall be recorded using a direct current voltage measuring device with a minimum of 10 megohms input impedance, accurate to at least + 1 % at 1 volt.
4. A negative voltage of at least 0.85 volts shall be recorded for each metallic tank and piping run.
5. The tank owner is required to maintain, repair or replace the system in accordance with the recommendations of the National Association of Corrosion Engineers, recommended practices #02-85, as amended whenever the system does not register a negative voltage reading of at least .85 volts for each tank or piping run, except as provided for in #8, below.
6. Alternate methods of monitoring, as described in the national Association of Corrosion Engineers Recommended Practice RP-02-85, Recommended Practice for Control of External Corrosion on Metallick Buried, Partially Buried, or Submerged Liquid Storage System (April 1985), as amended may only be used with written approval of the Department.
7. The frequency of cathodic protection monitoring shall be consistent with the requirements outlined in Section 5(B)(3) and (4).
8. When a negative voltage of at least 0.85 volts is not achieved upon installation, the measurement shall be repeated within six (6) months. Upon failing to achieve a negative voltage of at least 0.85 volts after the six (6) month period, the tank owner shall comply with #5, above.

NOTE: Structure to soil potentials measured when the soil is frozen may be inaccurate because of the increased resistance of the soil electrolyte. Cathodic protection monitoring schedules should be planned to avoid frozen soil conditions.

Appendix b

REQUIREMENTS FOR HYDROSTATIC (LIQUID) PIPING TESTS

For Both Remote and Suction Pumping Systems:

1. Prior to conducting the test, all air or vapor pockets shall have been bled from the line.
2. Piping shall be physically isolated from the tank prior to the test.
3. Any pressure drop of more than five pounds per square inch (psi) gauge per minute, shall be an indication of a possible leak.

For Suction Systems:

4. The test shall be conducted at 50 pounds per square inch (psi) gauge or greater for not less than 15 minutes.
5. Repeat the test to ensure against compression of extrained air.

For Remote Systems:

4. Close the emergency shut off valve at the base of the dispenser.
5. Install a pressure gauge with a maximum 60 pounds per square inch (psi) gauge range which clearly shows gradations of 1 psi.
6. Start the pump, and record maximum pressure of 25 to 35 pounds per square inch (psi) gauge.
7. Seat the check and relief valves.
8. Shut off the pump and record any pressure drop, for at least 15 minutes.

Appendix C

REQUIREMENTS FOR PNEUMATIC (AIR) TESTING

For Piping And Tanks:

1. When conducting an air pressure test on metallic tanks or piping, all joints, seams and connections shall be soaped. For fiberglass tanks and piping the entire surface as well as joints and connections shall be soaped.
2. The test shall be maintained for a minimum of 1 hour, and all soaped areas shall be visually inspected for bubbles or any other indication of a leak.
3. Any loss of pressure or appearance of bubbles shall constitute failure of the test.

Piping:

4. Underground piping shall be physically isolated from the tank prior to the test.
5. Underground piping shall be tested to 150% of the maximum anticipated pressure of the system, but not less than fifty (50) pounds per square inch (psi) gauge at the highest point of the system.

Tanks:

4. Air pressure testing of tanks shall only be performed on new, empty tanks, which have never contained product.
5. Tanks shall be tested before being covered, enclosed or placed in service.
6. Tanks shall be tested at not less than three (3) pounds per square inch (psi) and not more than five (5) pounds per square inch (psi) gauge. Gauges used during air testing of tanks shall have a maximum limit of 10-15 pounds per square inch (psi).

Appendix D

INSTALLATION REQUIREMENTS APPLICABLE TO NEW AND REPLACEMENT TANKS AT "MARKETING AND DISTRIBUTION" AND "CONSUMPTION ON THE PREMISES" FACILITIES.

1. Cathodically protected steel tanks must be set on a firm base and surrounded on all sides with at least 12 inches of noncorrosive inert material, such as clean sand, pea stone, or gravel, well tamped in place. The tanks shall be placed in the hole with care, making sure not to scrape the protective coating off coated tanks, or damage attached cathodic protection components. Cathodic protection systems require electrical wiring which is connected to the tank and shall be accessible for voltage readings at the ground surface as well as a location along the centerline of the tank to place a reference electrode in contact with the soil.
2. Cathodically protected steel underground tanks shall be covered with a minimum of 2 feet of sand, pea stone or gravel or shall be covered with not less than 1 foot of sand on top of which shall be placed a slab of reinforced concrete not less than 4 inches thick. This fill shall be free of debris, boulders, large rocks or other materials, which may cause abrasions to the protective coating of the tank. When tanks are, or are likely to be, subjected to traffic, they shall be protected from damage from vehicles passing over them by at least 3 feet of backfill or, 18 inches of well-tamped backfill plus 6 inches of reinforced concrete or 8 inches of asphalt paving. When asphalt or reinforced concrete paving is used as part of the protection, it shall extend at least 1 foot horizontally beyond the preimeter of the tank in all directions.
3. All cathodically protected steel and nonmetallic fiberglass underground tanks shall be installed in accordance with the manufacturer's instructions. The minimum depth of cover shall be as specified in Section 2, above.
4. New underground tanks shall be pneumatically tested for tightness in conformance with the requirements of Appendix C before being covered or placed in use.

NOTE: Air pressure testing shall not be conducted after petroleum product has been placed in the tank. Air pressure testing after petroleum has been in contact with the tank may result in explosion of the tank.

5. All temporary supports must be removed prior to final backfilling.
6. All electrical wiring shall be performed in accordance with the current State of Maine electrical code.
7. Anchoring of tanks shall be required where tanks will be installed in areas where groundwater will be in contact with the tank. When anchoring tanks equipped with cathodic protection the hold downs must be electrically isolated from the tank. Anchoring of all tanks shall be performed in accordance with the tank manufacturer's specifications.

NOTE: Tank installation instructions may require specific aggregate sized peastone or gravel. Instructions may also specify mechanical compaction or layerd placement of bedding and backfill. Always consult the installation instructions provided by the manufacturer, prior to installation.

Appendix E

INSTALLATION REQUIREMENTS APPLICABLE NEW AND REPLACEMENT PIPING AT "MARKETING AND DISTRIBUTION" AND "CONSUMPTION ON THE PREMISIS" FACILITIES

1. Before underground piping is installed, the trench shall receive as a minimum a 6-inch deep bed of well compacted noncorrosive material such as clean sand, pea stone or gravel. All trenches shall be wide enough to permit at least 6 inches of noncorrosive backfill material around all lines.
2. Prior to being covered or placed in service, all new and replacement piping shall be pneumatically tested for tightness with air pressure in accordance with the requirements contained in Appendix C, or hydrostatically tested in accordance with the requirements of Appendix B.
3. All temporary supports shall be removed prior to final backfilling.
4. All vent piping for storage of Class I liquids shall extend at least 12 feet above the ground surface and positioned such that vapors will not pose a hazardous condition.
5. Fill piping for storage of Class I liquids shall be at least 5 feet or more from any building opening in accordance with National Fire Protection Association Code 30.
6. Product supply lines which are used in conjunction with remote pumping systems shall be installed with a product line leak detection device. All leak detection devices shall be tested for proper operation before the remote pumping system is used after initial installation and once annually thereafter. All leak detectors shall be capable of detecting a leak at a rate of at least 3 gallons per hour.
7. Conventional suction systems shall have no more than one check valve per pump. The check valve shall be located as close to the pump as possible, such that any leaks in the line will result in a return of product to the tank.

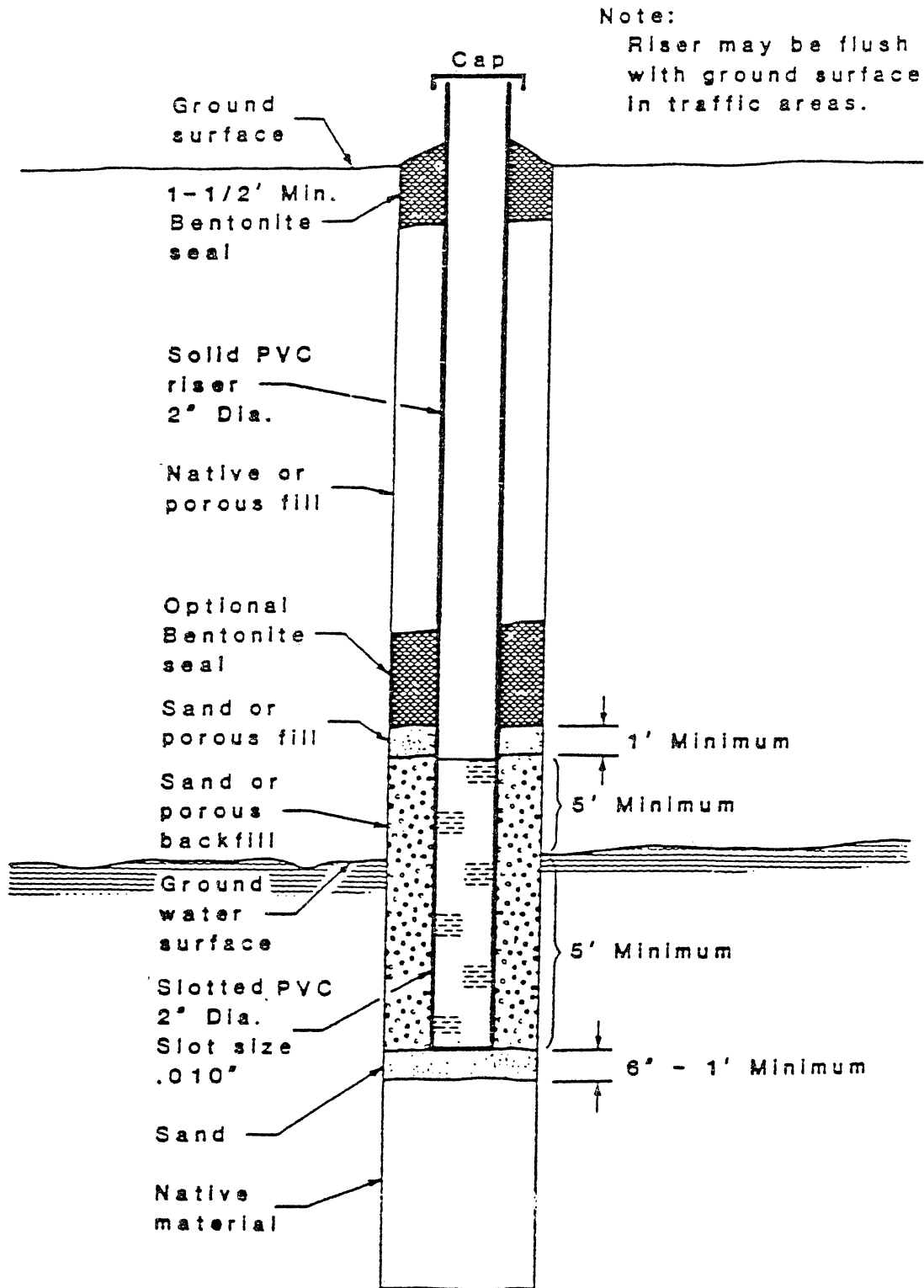
Appendix F

SPECIFICATIONS AND REQUIREMENTS FOR VERTICAL MONITORING WELLS

1. Monitoring wells shall be a minimum of 2 inches in diameter.
2. The slotted zone shall extend at least five feet into the water table and at least five feet above the groundwater surface, as determined at the time of installation.
3. The screened portion of the well shall be a minimum of ten (10) feet in length and shall be factory slotted with a slot size of .010 inch..
4. Monitoring wells shall be installed with a cap at the bottom of the slotted section of the well.
5. Monitoring wells shall not be constructed of schedule 20 PVC "sewer" or leach field piping.
6. Monitoring wells shall be constructed of flush joint, threaded schedule 40 PVC or other brands of PVC which have equivalent or greater wall thicknesses.
7. Monitoring wells shall be numbered such that all monitoring and testing results shall be easily correlated to a specific monitoring well location.
8. All monitoring wells shall be equipped with liquid-proof caps.
9. Monitoring wells shall be properly distinguished from fill pipes.
10. The area around the screened portion of the well shall be surrounded by a porous medium (e.g. sand, gravel or peastone).
11. The outside of the monitoring wells shall be sealed using bentonite or a similar product to a depth of 1 1/2 feet below ground surface.
12. Monitoring wells which are located in traffic areas shall be cut off at ground level or properly protected from vehicles.
13. Any damaged monitoring well shall be repaired or replaced as soon as possible after discovery of the damage.

FIGURE 1

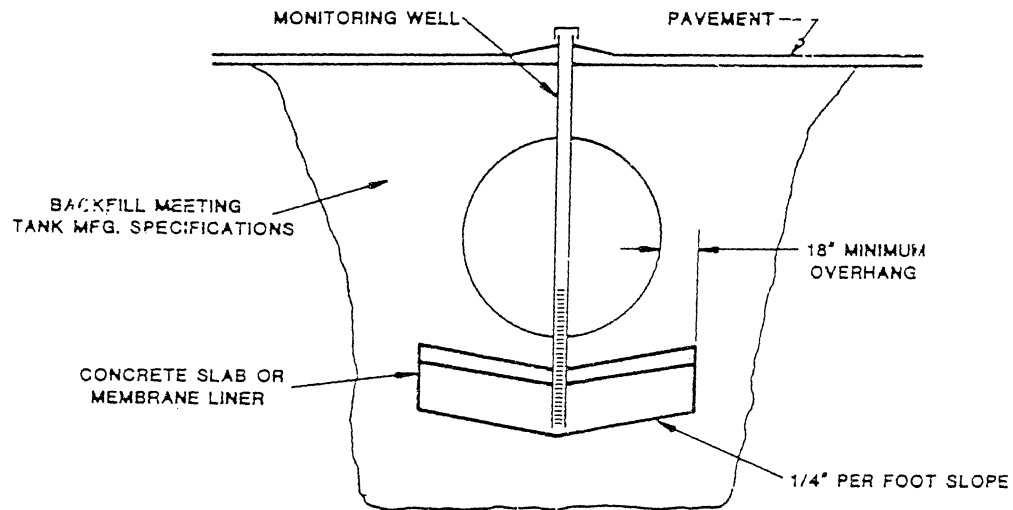
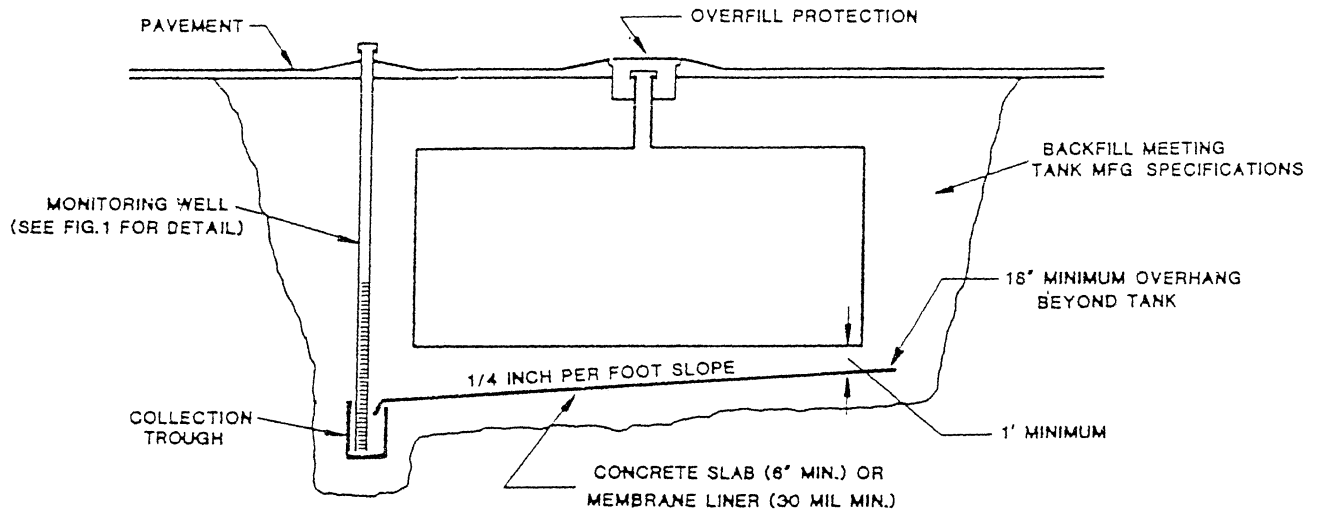
VERTICAL MONITORING WELL



Appendix G

ADDITIONAL SPECIFICATIONS AND REQUIREMENTS FOR MONITORING WELLS WITH IMPERVIOUS BARRIERS

1. Monitoring wells with impervious barriers shall be utilized in areas where the ground water surface is greater than fifteen (15) feet from the ground surface and where bedrock is within three (3) feet of the excavation bedding required for proper excavation.
2. Monitoring wells shall be constructed in conjunction with an impermeable membrane, impervious structure or other approved device that is resistant to hydrocarbons, sloped to a sump such that all leaks or discharge will be detected in a product monitoring device (see Figure 2).
3. The impermeable barrier shall slope to a twenty-four (24) inch sump, at a slope of 1/4 inch per foot.
4. The impermeable barrier shall extend eighteen (18) inches beyond each side of the tank(s).
5. The impermeable barrier shall run under the entire length of the tank, which is being monitored.
6. The barrier shall be placed under the bedding material and shall not be in direct contact with the tank.
7. Monitoring wells shall be constructed in accordance with the specifications and requirements as contained in Appendix F, except that the well shall be placed in the sump as illustrated in Figure 2.
8. Any damaged or nonfunctioning monitoring well shall be repaired or replaced as soon as possible after discovery of the damage.



NOTES:

- DRAWINGS NOT TO SCALE
- FOR USE WHERE WATER TABLE IS AT LEAST 15' BELOW GRADE AND FOR INSTALLATIONS OVER BEDROCK
- OTHER CONFIGURATIONS MEETING APPENDIX G PERFORMANCE STANDARDS MAY BE ACCEPTABLE

FIG.2 MONITORING WELL AND IMPERMEABLE LINER

Appendix H

REQUIREMENTS FOR WEEKLY MONITORING, HANDLING, AND OBTAINING SAMPLES FOR LABORATORY ANALYSIS

NOTE: Due to the extreme sensitivity of laboratory analytical equipment. It is very important that all bailers, pumps and sample vials be kept clean. A contaminated pump or bailer may cross-contaminate monitoring wells or falsely indicate the presence of hydrocarbons in the ground water. It is also important tht the person taking the sample have clean hands free of any grease, oil or gas.

For Weekly Monitoring Perform Steps 1 through 7.

1. All equipment used shall be washed with a detergent soap and triple rinsed with water which is known to be uncontaminated to insure the device is clean. The individual(s) performing the sampling shall wash their hands thoroughly prior to sampling.
2. Measure and record the distance from the top of the casing to the water surface.
3. Measure and record the distance from the top of the casing to the bottom of the well.
4. When the volume of water in the well is sufficient remove several bailer volumes of water.
5. Lower the bailer into the well and remove a sample. Pour the contents of the bailer into a clear container.
6. Inspect the sample for free product or an oily sheen. Smell the sample for olfactory evidence of oil.
7. Record the results in a log book which shall be kept at the facility. A sample log sheet is attached in Figure 3.

NOTE: Commercially available pastes, which change color upon contact with hydrocarbons can be spread on a weighted, plastic tape measure or measuring stick and lowered the depth of the well. Pastes are also available which will change color upon contact with water. The use of these pastes are an acceptable method of determining water levels and detecting product in monitoring wells for the purpose of complying with weekly monitoring requirements.

8. Prior to obtaining samples for laboratory analysis, remove three (3) well volumes of water from each well. The water may be removed by bailing or pumping the well. For two (2) inch wells, remove approximately 2.5 gallons of water for every five (5) feet of well water.
9. After a sufficient volume of water has entered the well, take a sample for analysis.

Figure 3

SAMPLE WEEKLY MONITORING WELL LOG SHEET

Monitoring Well No.	1	2	3	4	5	6	7	8
1. Date of Sampling								
2. Time of Sampling								
3. Distance from Casing to Ground Water								
4. Distance from Casing to Bottom of Well								
5. Method for Determining Water Levels								
6. Instrument Cleaned (Washed and Triple Rinsed)								
7. Instrument Used (Bailer, Pump, etc.)								
8. Results of Sight and Smell Test								
9. Initials of Person Performing the Sampling								

10. Comments

10. Samples shall be poured into vials designed for sampling volatile organics. Standard sampling vials are glass, 30-50 mililiters in volume with a teflon cap. Obtain the sample vials from the lab where the analysis will be performed. Care shall be taken, such that no air bubbles are in the sample vial. Record the sample vial number and the monitoring well number, such that the laboratory analysis may be correlated to a specific well location.
11. Samples shall be securely packed and shipped the same day. Samples shall be kept cool and not exposed to heat. A record shall be kept of all dates and shipping arrangements.
12. For monitoring wells which are installed with the impervious barrier, which contains, less than two (2) feet of water, do not attempt to remove three well volumes of water. It may be necessary to sample the well during or after periods of rain whenever possible.
13. For monitoring wells which do not have enough water to obtain a sample, measure the depth of the well to insure the well is not filled in or has not collapsed. Using a gauge stick or hard plastic tape, apply paste which will turn color upon contact with hydrocarbons. Record the results of both measurements for each well, in the logbook.

APPENDIX I

TANK DATA COLLECTION FORM

SAMPLE

COMPANY _____

Location # _____

Street _____

City _____

State _____

Tank No. _____

Product _____

Tank Size _____

Tank Type (STEEL/FRP) _____

Type of Pump System
(Pressure or Suction)

Manifold (Y/N) _____

DATE	OPENING INVENTORY	SALES	+ DELIVERY	= INVENTORY BALANCE	CLOSING PHYSICAL INVENTORY (STICK)	= OVER (SHORT)	WATER	NIGHT STICK
4-1	3409	1259		2150	2243	93	0	
4-2	2150	1255	5500	6395	6225	<170>	0	
4-3	6395	1525		4870	4529	<342>	0	
4-4	4870	1475		3395	3100	<295>	0	
4-5	3395	1652		1743	1604	<139>	0	
4-6	1743	2019	5501	5225	4959	<266>	0	
4-7/8	5225	1498		3727	3361	<366>	0	
4-9	3727	1325		2402	2028	<374>	0	
4-10	2402	1582		820	571	<249>	0	
4-11	820	1406	5499	4913	4645	<268>	0	
4-12	4913	1744		3169	2890	<279>	0	
4-13/N	3169	1894		1275	734	<541>	0	
4-15	1275	929	5501	5847	5572	<275>	0	
4-16	5847	1204		4643	4157	<486>	0	
4-17	4643	1459		3184	2840	<344>	0	
4-18	3184	1488		1696	1247	<449>	0	
4-19	1696	1698	5000	4998	4649	<349>	0	
4-20/21	4998	1779		3219	2933	<286>	0	
4-22	3219	1223		1996	1562	<434>	0	
4-23	1996	1467	4801	5330	4893	<437>	0	
4-24	5330	1355		3975	3435	<540>	0	
4-25	3975	1453		2522	1975	<547>	0	
4-26	2522	1634		888	285	<603>	0	
4-27/28	888	1742	5500	4646	4028	<618>	0	
4-29	4646	1334		3312	2662	<650>	0	
4-30	3312	1369		1943	1300	<643>	0	
5-1	1943	1491	5000	5452	4783	<669>	0	
5-2	5452	1705		3747	3100	<647>	0	
5-3	3747	1963		1784	1044	<740>	0	
5-4	1784	1260	5501	6025	5292	<733>	0	
RECAP	3409	- 45187	+ 47803	6025	5292	<733>	DIFFERENCE	

Certified by: _____

Appendix J

REQUIREMENTS FOR ABANDONMENT OF UNDERGROUND OIL STORAGE
FACILITIES BY REMOVAL

1. Piping shall be drained and flushed into the tank.
2. All liquid which can be pumped out, including that liquid requiring a hand pump to remove, shall be removed, and any liquids which cannot be used for their originally intended purpose shall be disposed of in accordance with the Department's Waste Oil Management Rules, Chapter 860.
3. The top of the tank shall be exposed.
4. The fill (drop) tube shall be removed. Fill, gauge, and product lines shall be disconnected. The open ends of all lines shall be capped or plugged.
5. All remaining openings shall be temporarily plugged, the excavation completed, and the tank removed prior to degassing. The tank shall be blocked to prevent movement. Extreme caution is required during this procedure.
6. All tanks which contained Class I liquids shall be rendered gas-free using one of the following methods:
 - a. The tank can be purged with dry ice in the amount of 1.5 pounds per 100 gallons of tank capacity. Dry ice shall be crushed and distributed evenly over the greatest possible area. During the purging process, all necessary precautions to prevent ignition in the entire area shall be taken.
 - b. The tank can be ventilated with air, using a small gas exhauster operated with compressed air or by other suitable means. The flow of air shall be directed through the length of the tank. Vapor concentration in the tank shall be monitored with a combustible gas indicator, and the process shall continue until the tank is gas-free. During the purging process, all necessary precautions to prevent ignition in the entire area shall be taken.
7. All holes, including corrosion holes, shall be plugged or capped after the tank has been purged of vapors and before it is moved from the site, except that one 1/8 vent hole shall be left to prevent the tank from being subjected to an excessive pressure differential caused by extreme temperature changes.
8. If transported, the tank shall be secured on a truck such that the 1/8 inch vent hole is located on the uppermost point on the tank.
9. All piping shall be removed whenever practicable.

Appendix.K

REQUIREMENTS FOR ABANDONMENT OF UNDERGROUND OIL STORAGE FACILITIES
BY FILLING IN PLACE

1. Piping shall be drained and flushed into the tank.
2. All liquid which can be pumped out, including that liquid requiring a hand pump to remove, shall be removed and any liquids which cannot be used for their originally intended purpose, shall be disposed of in accordance with the Department's Waste Oil Management Rules, Chapter 860.
3. The top of the tank shall be exposed.
4. The fill (drop) tube shall be removed. Fill, gauge, and product lines shall be disconnected. Open ends of all lines, except the vent line, shall be capped or plugged.
5. All tanks which contained Class I liquids shall be rendered gas-free by using one of the following methods:
 - a. The tank can be purged with dry ice in the amount of 1.5 pounds per 100 gallons of tank capacity. Dry ice shall be crushed and distributed evenly over the greatest possible area. During the purging process, all necessary precautions to prevent ignition in the entire area shall be taken.
 - b. The tank can be ventilated with air, using a small gas exhauster operated with compressed air or by other suitable means. The flow of air shall be directed through the length of the tank. Vapor concentration in the tank shall be monitored with a combustible gas indicator, and the process shall continue until the tank is gas-free. During the purging process, all necessary precautions to prevent ignition in the entire area shall be taken.
6. A suitable, solid, inert material shall be introduced through the hole in the top of the tank. The following materials are suitable for this purpose:
 - a. Sand. Sand that is free of rocks is suitable for filling. It may be poured dry as long as it flows freely. When the tank is nearly full, sand should be washed into the tank with a nominal amount of water and puddled to cause the sand to flow to the tank ends. The use of large amounts of water shall be avoided.
 - b. Sand and Earth Fill. The tank can be (1) filled with sand to approximately 80 percent of the calculated capacity, and (2) filled to overflowing for the remaining capacity using a mixture of soil and water in a free-flowing mud.

EFFECTIVE DATE: APR 5 1986

AUTHORITY: Title 38, M.R.S.A., Section 541 et seq.

ACCEPTED FOR FILING: MAR 31 1986

BASIS STATEMENT:

Title 38, M.R.S.A, Section 561 et seq., provides legal authority to the Board of Environmental Protection for the adoption of rules concerning the design, installation, replacement, operation and abandonment of underground oil storage facilities and ground water protection. Chapter 691 regulates new and replacement as well as existing facilities. Regulation is provided for tanks or facilities where oil is stored for use for consumption on the premises by the owner or operator and for facilities used for the marketing and distribution of oil.

To assist the Board in formulating the provisions of this rule and to encourage public participation in the rule making process, the Board held a public hearing in Augusta on December 4, 1985. The public comment period extended until December 16, 1985 to provide adequate time for public input. As a result of the oral testimony and numerous written comments, a number of modifications were made to the proposed rules.

Comments were received from environmental organizations, state agencies, members of the regulated industry, as well as consultants, equipment manufacturers and technical organizations. A list of those individuals and groups who commented on the proposed rules is attached.

Where the Department felt it was appropriate and consistent with the statute and the Legislature's purpose of ensuring the protection of Maine's ground water resources and public health, safety, welfare and the environment, changes and modifications were incorporated into the rule.

As a result of the comments received language clarifications were incorporated and many subject areas have been reorganized. No comments were received on the preliminary flexibility analysis prepared by the Department. This basis statement supplements that analysis and will serve as the final flexibility analysis, in accordance with the Governor's Executive Order of May 24, 1985.

All the comments were evaluated by staff from the Bureau of Oil and Hazardous Materials Control. The following is a categorical discussion of the comments received.

Definitions

Several commenters requested new definitions be added to help clarify the rules. Based on those comments, three definitions have been added.

A definition of "in service" has been provided so that individuals may better evaluate when inventory records are required and how to determine when a facility is required to undergo proper abandonment.

A definition of "Class I Liquids" has been added to assist tank owners, contractors and scrap metal dealers in determining which tanks must be rendered gas-free during the abandonment process.

Lastly, provisions were made and a definition created for a "Temporarily Out of Service" facility. This new category will allow tank owners to apply to the Department in writing for permission to remain temporarily out of service for a 12 month period. This provision is deemed necessary for facility owners who may be non-operational for more than twelve (12) months. A strict interpretation of the original proposal may have required the tank owners to remove the facility and undergo abandonment, regardless of the age or type of the tank and piping. Permission to remain temporarily out of service shall only be granted when the facility has been designed and installed in accordance with this rule, the facility is not leaking, all product is removed, and the facility will be precision tested prior to being returned to service.

At the request of several commenters, additional changes in the definition section involved relocating the procedural "how to" information into the Appendices. This should provide for easier reading and understanding of the basic requirements while providing technical guidance for installers and other professionals without referencing separate publications.

One commentor requested that the reference to "4 pounds per square inch gauge" be eliminated from the precision testing definition. Because it may be possible to manipulate leak rates by using different amounts of pressure and because the reference to 4 pounds per square inch was contained in the statute, no change has been made.

Several of the technical organizations questioned the definition of cathodic protection monitoring and use of "a negative voltage of at least 0.90 volts . . ." as the measure of determining adequate cathodic protection. The proposed rule has been changed to reflect the more widely accepted measure of "a negative voltage of at least 0.85 volts."

The procedural information for cathodic protection monitoring as well as for hydrostatic and pneumatic testing has been revised and relocated in the Appendix.

The definition of "leak" has also been modified to more accurately reflect the definition given in the statute.

Registration

Title 38 M.R.S.A. requires all underground oil storage facilities to be registered with the Department regardless of use, size, or whether the facility is in service or out of service. Comments received regarding the Registration of facilities resulted in reorganizing the section and clarifying the existing rules.

At the request of one commenter, a statement clarifying who must register underground storage facilities has been added.

Upon advice from the Department of Attorney General, a section of the rules which stated that fire departments could "petition the Department for action" when 5 days' notice was not received prior to a tank installation has been

eliminated. This provision did not have clear legal authority and no guidelines were contained in the statute for processing such petitions. The elimination of this does not preclude fire departments from alerting the Department that a copy of the registration materials was not received, it merely eliminates a reference to a procedure which does not legally exist.

One commenter recommended that the Department only be allowed to require retro-fitting of new and replacement installations which do not comply with the rules within a fifteen (15) day period. The purpose of the regulations is to ensure that facilities are installed using the available technology and appropriate installation and testing procedures. If it is discovered that an installation was improperly installed, the facility should be retrofitted at any time to ensure compliance with the requirements and provide protection of Maine's ground water resource. The commenter's proposal would preclude the Department and the Board from requiring a proper installation if a facility installed in violation of this rule goes undetected for 15 days. This is an undue restriction of the Department's and the Board's enforcement powers.

One commenter questioned the need for a tank owner to receive a written acknowledgement from the Department prior to installing a new or replacement underground facility. The tank owner is not required to wait beyond the five days required by the statute. However, the tank owner will be required to retrofit the facility if it is not in conformance with the regulations. The acknowledgement letter protects the tank owner from the possibility of closing down his business, digging up the installation or replacing those facility components which are not in compliance. The staff can not think of a better

way to assure the tank owner and installer that the facility design complies with the rules. However, tank owners may install a facility prior to receiving acknowledgement, but they do so at their own risk.

One commenter questioned the language on the registration form which requires that "former owners of underground tanks used to store regulated substances who discontinued service of such tanks after January 1, 1974" register the facility. This is a requirement of federal law (Section 9002 of the Resource Conservation and Recovery Act) and can not be changed at the state level. The staff has however, incorporated language which better represents Maine's strict liability laws, and requires the property owner to register facilities where the facility owner is unknown or is disputed.

Other language clarifications of the existing rules have been made; however, no new requirements have been added.

Requirements for Marketing and Distribution Facilities

The majority of comments concerned the many technical and procedural requirements of the rules, particularly as they relate to marketing and distribution facilities.

Comments were received regarding the reuse of fiberglass or cathodically protected facilities, and the preliminary proposal that the "original warranty" be honored, in order to continue usage of acceptable tanks. Generally, the staff feels we should not require facilities to be removed which meet current

standards and are still under warranty. Hence, this requirement has been reworked to allow facilities to remain in use, provided the facility is under warranty against internal and external corrosion and structural integrity, yet not require the manufacturer to warranty the facility for an additional thirty-year period. A minimum ten year warranty is now proposed, after which the facility must be properly abandoned. Facility owners may continue using facilities, so long as the manufacturer stands behind his product. It should be noted that most of the larger tank manufacturers have testing procedures which are used to determine if they will extend a tank warranty. It should also be noted that some manufacturers feel their facilities may last as long as 60-100 years if properly installed, operated and maintained.

An additional requirement has been added at the request of a commenter who expressed concern that although facility owners are required to replace tanks with fiberglass or cathodically protected steel, there was no expressed requirement that outdated piping be replaced. The new language requires that when a tank is replaced, all piping not meeting the requirements of this rule shall be replaced with piping which meets the current standards contained in these regulations. For example, installers could install new piping runs in a manner which would facilitate replacement of piping without necessitating the destruction of concrete and asphalt paving. Staff would suggest installing new pipe runs with a larger diameter PVC sleeve which would add flexibility from frost heaving, as well as protect pipe runs from the corrosive forces of surrounding soil, and provide for replacement without disturbing the aprons around the pump island. However, the PVC sleeve is not a requirement of the proposed rule.

One commenter submitted a design which incorporates many of these ideas. A copy of the design is attached to this basis statement. It is not proposed by staff because of the extra valving and PVC pipe which represents an added expense to the regulated community. It should also be noted that the regulated community has not had the opportunity to review and comment on the design.

A review of technical studies indicates that piping leaks are responsible for 33 to 65% of all underground leaks depending on the source of the study. It should also be acknowledged that these studies were performed on an unregulated industry whose practices varied from region to region. The Department remains concerned that piping runs may contribute to spills and leaks, and may propose additional controls should the provisions of this rule be ineffective in preventing pipeline leaks.

Many interested groups commented on the ground water monitoring design proposed for use where ground water was below 15 feet from the ground surface and where bedrock surfaces provide an avenue for contamination to reach deep ground water supplies. Although all commenters supported the concept, many asked for clarifications in the design. The following changes were deemed appropriate and incorporated into the rule:

1. Equipping the barrier with a 24 inch sump, as illustrated in Figure 2, into which the monitoring well is installed;
2. Extending the impervious barrier a minimum of eighteen inches beyond all sides of the tank;

3. Providing an option for situations where although bedrock surfaces were close to the tank, prevailing year round ground water elevations would prohibit product from entering bedrock fractures;
4. Defining the depth to which a tank installer must determine that bedrock does or does not exist. The depth is three (3) feet below the excavation required for proper bedding of a tank. This represents a compromise since this is actually four feet below the tank, and commenters asked for 0, 3, and 5 foot depths; and
5. Elimination of the U and L tube monitoring well designs. This is considered to be appropriate due to the increased efficiency provided by the barrier and sump. The L tube, because of its unique design, costs over \$120 dollars per 20 foot section is not considered to be as effective as the less expensive vertical well placed in a sump.

A note has been added to Section 5 clarifying that galvanized pipe does not meet the definition of cathodic protection or corrosion protection. This clarifies the intent of the original draft, and hence is not a new requirement.

Several comments concerned the need for overfill boxes or sumps. One commenter pointed out the need to require overfill protection at all new and replacement installations, since overfilling results in lost product and prohibited discharges which in turn result in unnecessary tank testing, laboratory testing and leak investigations. The Department agrees with the comment and has made the necessary change. Additional comments from equipment

manufacturers asked that more specification regarding capacity be included and that automated shut-off devices be made available as an option. It is the staff's intent that the overfill boxes contain hose drippings and minor incidences of overfilling, while not requiring a large capital investment or elaborate spill containment structures. Overfill sumps shall contain a minimum of three gallons or greater, which is a standard design according to the manufacturers. Automatic shut-off devices are now proposed for optional use in place of overfill sumps, thus allowing for the use of additional forms of current technology designed to prevent a known source of discharges.

As the result of one comment, a change was incorporated which will require impressed current systems to be installed by a certified underground tank installer, in order to be consistent with the intent of the statute that facilities be installed under the supervision of a specially trained and certified professional.

The section on installation standards for tanks and piping has been reorganized and where the requirements for both major categories of facilities were identical, Appendices D and E have been created for easier referencing of technical requirements.

Some minor changes were made to the required location of sampling ports used for continuous electronic monitoring for vapors. A comment was received pointing out that the existing requirement for the location of sampling ports was in conflict with requirements of the equipment manufacturers. The staff believes the change now brings the location of ports into conformance with the requirements of existing technology.

One engineering firm requested that professional engineers be allowed to certify that fewer monitoring wells would be adequate when choosing the ground water monitoring option in sensitive geologic areas. After evaluation by staff and consultation with the Maine Board of Certification of Geologists and Soil Scientists, it was felt that only a "certified geologist with experience in hydrogeology" should be allowed to make that determination. The monitoring well network is an option provided by legislative mandate which replaces the staff's initial proposal under interim regulation which required secondary containment of all tanks and piping. The use of highly trained individuals with specific expertise in hydrogeology is essential to establishing an effective and reliable monitoring system.

Probably the most controversial and difficult issue revolves around the most effective and feasible means to monitor product pipe lines. Several commenters requested an impervious liner sloped to a monitoring sump or well, to be installed under pipelines which use remote pumping systems. Other comments relied upon limiting suction pumping systems to one check valve, located near the pump or, for remote pumping systems, the installation of a leak detection device. Product line monitoring relies heavily upon the tank owner or operator's environmental conscience, in that pressure losses are to be reported as evidence of a leak. Opponents of the line leak detector have questioned the sensitivity of the device, as well as the possibility that through tampering or installation of additional valves, that prime may be maintained even though a leak exists.

It should be noted that while some manufacturers of line leak detectors claim a sensitivity level of .05 gal/hour, the device cost approximately \$1,500.

After researching this issue, staff believes the most readily and economically available detector will detect leaks greater than three gallons per hour. The detector runs a line test each time the pump is turned on. When a leak is present at greater than three gallons per hour, the pump behaves erratically, and product flow is interrupted. Under this rule, this shall be reported to the Department. The check valves and line leak detectors replace the previous proposal for monitoring wells to be installed along pipelines and near dispensers. The fact that new facilities may only be installed under the supervision of a certified, professional tank installer will reduce the opportunity to install additional valving which would maintain prime even under leaking conditions. Further regulation for the individual who illegally installs additional valves after the certified installer leaves the site is not necessary. Those individuals represent a very small fraction of the regulated community and would not comply with additional requirements anyway. The Department intends to take enforcement action against those individuals.

After consideration of a comment concerning the time period within which a notice of cancellation of insurance must be received by the Department, the time requirement has been modified from sixty days to thirty days. This time period is consistent with policies currently in effect and available to the regulated community.

After consideration of a comment, the methods for obtaining product and water level measurements for inventory purposes was expanded to provide for electronic or mechanical devices which measure both product and water levels to at least one quarter inch; this technology is also currently available.

Several commenters requested guidance in providing a time frame for submitting statistical inventory analysis results. The rule now requires facilities located in a municipality whose first letter is A-L to submit the results annually on or before July 1, 1986 and those facilities located in a municipality whose first letter is M-Z to submit their results annually on or before October 1, 1986.

As mentioned at the public hearing, the frequency by which tank owners shall be responsible for obtaining ground water samples for laboratory analysis has been changed. New and replacement facilities will take samples prior to operation to establish a background level. Upon evidence of a leak, as outlined in the rule, the tank owner shall obtain samples quarterly. Based on those results, a determination will be made by the Department as to whether the facility shall continue laboratory testing of samples beyond the 1 year (4 additional samples) required. This represents a change from the Department's original proposal of a quarterly sampling schedule.

The requirements for relining a facility have been relocated. The requirement of a warranty has been changed and a person performing tank lining shall warranty the tank for a minimum of ten (10) years, against internal and external corrosion and structural failure. Upon expiration of the warranty, the facility must be properly abandoned.

A suggestion was made that the section of the rule addressing corrosion induced leaks in an unprotected steel tank be modified. After a review of the statute, staff felt such a change would be inconsistent with the existing statutory limitations. The statute currently reads that "if replacement is

required as a result of a leak in an unprotected steel tank, the owner or operator of the facility may either replace all other tanks and piping not meeting the design and installation standards or comply with the following ."

The existing language is unclear and might be interpreted to mean that if the owner or operator does not replace the tanks but simply removes the tank, he is not required to assess or monitor the condition of the remaining tanks and piping at the site even though the existing tanks are subjected to the same corrosive forces which caused the first leak. This, combined with the fact that there is no set schedule for the replacement of unprotected facilities, allows each existing facility to have a leak prior to its required removal. This section of the statute may have been an attempt to address the differential corrosion rates caused by metals of different ages. This issue should be returned to the Legislature for clarification.

One comment received from an equipment manufacturer asked that the regulations specifically include their tank's model name as meeting the requirements of the rule. While the model named does meet the requirements of the regulation, staff has not included this as it would then be necessary to modify the regulations each time new models which are consistent with the rules are introduced.

One comment suggested that annual cathodic protection monitoring was unnecessary. However, this is a statutory requirement, and, accordingly, no change was made. Additionally, annual monitoring is not time consuming or costly and is an important aspect of monitoring tank corrosion. The same group also indicated that fiberglass tanks should be monitored for end deflection

which may occur as a result of improper backfill. A note has been added to the installation requirements to alert installers that the manufacturer may require specifically sized aggregates and mechanical compaction of backfilling. Because installers must follow the manufacturers instructions and whereas a certified installer will be on site during the installion, no changes have been made.

One commenter requested that galvanic cathodic protection monitoring take place on a monthly basis. This change would be overly burdensome and cannot be justified technically and has not been incorporated into the rules.

Consumption on the Premises

One comment was received stating that the (9) nine month time period allowed for "construction facilities" to operate an underground storage facility was insufficient. A provision has been added to allow owners or operators of construction facilities to apply in writing for an additional 12 month extension of time. The intent is to routinely grant such a request except where it is determined that the site is not undergoing construction and the intent of the provision is being abused. The Department feels that to require a construction facility to be pumped dry, removed, inspected and re-installed after each 9 month period may increase the risk of a spill or discharge by excess handling, as well as increasing the risk of damage to the facility.

As previously discussed, the same changes were made requiring a ten (10) year warranty prior to reuse of facilities which are in compliance with the

design and installation requirements of this rule. Facilities shall undergo abandonment when the warranty expires.

Clarifications have been added to assist the tank owner in determining when the vertical monitoring wells are required to be installed in conjunction with the impervious barrier.

One commenter from a State agency requested consistency of the requirements between the categories of facilities with respect to frequency of monitoring well sampling. The frequency required for sampling monitoring wells has been changed and is the same as the frequency required for the Marketing and Distribution facilities. This replaces the originally proposed requirement for quarterly laboratory analysis, to a weekly visual and olfactory observation, with laboratory analysis prior to operation , and quarterly laboratory analysis after the clean-up of any leaks.

The same design specifications previously discussed for overfill protection at marketing and distribution facilities were also made regarding overfill devices at new and replacement facilities used for consumptive use on the premises which have a capacity of 1,100 gallons or more.

In response to one comment, a time frame has been established to meet the monitoring requirements for a 20 year old motor fuel facility. Sixty days will be allowed to precision test or install ground water monitoring wells as required by the statute. Permission may be granted by the Department upon written request to extend the time frame for compliance. This provides flexibility for those facility owners who may choose monitoring wells as opposed to precision testing.

One commenter requested that all Consumption on the Premises Facilities be required to keep and reconcile daily inventory. However, this requirement was not contained in the statute and there is no accepted and accurate measuring device to monitor fuel used in boilers and furnaces; hence, this comment was not incorporated into the rule. It is possible, however, to take accurate inventory measurements on motor fuel facilities; however, once again it has no statutory basis.

A State agency also questioned whether staff intentionally did not require secondary containment or other options in sensitive geologic areas. The statute did not include additional installation requirements for consumptive use facilities in sensitive areas. Hence, no additional protection beyond the design and installation requirements for new and replacement facilities are proposed, even though both facilities may store and dispense the same product, at locations which are contiguous, possibly over a sand and gravel aquifer or near a water supply. The Department remains concerned that the lack of additional requirements poses a significant increase in risk to the ground water.

One commenter also noted that no provision was made for consumptive use facilities to employ a certified geologist and install fewer monitoring wells. No facility may install fewer than two monitoring wells when required, even with the approval of a geologist. Consumptive use facilities require only two wells in the first instance, therefore no change has been made to the original proposal.

One commenter questioned whether tanks with a capacity of less than 1,100 gallons were less likely to leak. The possibility of a leak is not related to the size of the tank; however, because the capacity criterion was contained in the statute, the staff can not propose changes at this time. Staff believes all tanks regardless of size or use have the potential to cause damage as a result of leaks or discharges. The legislature did not chose to require tanks with a capacity of less than 1,000 gallons to install additional monitoring devices..

A comment was received questioning the backfill specification for tanks located in high traffic areas. This specification came directly from the technical publications and is consistent with sound engineering principles and has not been recommended for change.

Waste Oil Facilities

The regulations for underground waste oil storage facilities have also been relocated and reorganized. Comments on this section came almost entirely from State agencies. One content change is that waste oil facility owners will now be subject to fees based upon use of waste oil. This change is proposed to bring this section into compliance with the additional sections of the rule.

Another change requires waste oil facilities to be removed within sixty days after the tank warranty expires, or within sixty days of becoming twenty (20) years of age if no warranty is in effect.

Lastly, the age of the facility, where unknown, shall be considered to be fifteen (15) years as of May 1, 1986. This is consistent with the statutory language for facilities used for consumption on the premises.

Changes were also made regarding the warranty required for facilities which may be reinstalled. The same changes were incorporated in this Section which have have already been discussed in the review of previous sections.

Abandonment of Underground Oil Storage Facilities

One commenter noted the need throughout the proposed regulation for time schedules for completion of the required tasks associated with facility monitoring, reporting, and removal. The proposed rule calls for the removal of facilities within sixty (60) days of being out of service for twelve (12) months, unless the facility has been been granted permission to remain temporarily out of service. A discussion of the requirements for a facility to be designated as temporarily out of service, is located in the section of the basis statement regarding definitions.

One commenter also noted that the notice of abandonment did not call for the date upon which abandonment would take place. Because this is helpful in scheduling inspections of facility abandonments, this requirement has been added. A comment from the Board of Underground Storage Tank Installers suggesting that a certified installer be present during abandonment for Marketing and Distribution Facilities and Consumption on the Premises facilities with an aggregate capacity of 1,100 gallons has also been incorporated into the regulation.

Commenters were in disagreement concerning this requirement. While some feel it will pose an additional burden on the tank or property owner, resulting in non-compliance, others feel improper removal of tanks and contaminated soil to be a large enough problem to require that installers be present on site.

A State agency commented that several technical publications required only tanks which previously contained Class I liquids be rendered gas free. The agency is right, and the change has been made to require only tanks used to store Class I liquids to be gas freed.

One commenter suggested that it would be beneficial to have a State-funded program which would finance the removal of illegally abandoned facilities, where the facility owner was unknown or financially unable to comply with the regulations. This idea has merit; however, the staff lacks the authority to create such a program in the context of these regulations.

Lastly, the procedural and technical requirements of abandonment have been relocated to Appendices J and K.

Appendix A

Based on comments received verbally from several tank installers, six months have been provided for new and replacement installations to record a negative voltage of 0.85. This compensates for the effect that frozen and disturbed soils have on cathodic protection monitoring.

Appendix B

The procedures for hydrostatic piping tests have been expanded and clarified in accordance with the information contained in National Fire Prevention Association Publication No. 329.

Appendix C

Several comments were received asking for clarification of pneumatic testing. One commenter submitted the draft publication by the Petroleum Equipment Institute entitled PEI/RP 100-85 "Recommended Practices for Installation of Underground Liquid Storage Systems." This publication will recommend that air testing be maintained for 1 hour. This 1 hour recommendation was incorporated into the rules, as well as a requirement that gauges with a maximum of 10-15 psig be used when air testing tanks.

Appendix D

A note has been added regarding specific installation instructions which are supplied by tank manufacturers. Since improper installation may void certain warranties, it was felt that it would be appropriate to mention the importance of consulting the manufacturer's instructions.

Appendix E

A discussion of the types of pipeline monitoring has already been presented; however, it is in Appendix E that the change actually occurs.

Appendix F

The rule requires that monitoring wells be constructed of threaded, flush joint piping because of the greater ease of installation and better construction. Additionally, all monitoring wells shall be numbered to facilitate coordination of monitoring well data.

Appendix G

This appendix contains the specifications and requirements for the impervious barrier required at sites located above bedrock and where ground water is greater than fifteen (15) feet from the ground surface.

Appendix H

Several commenters have asked, throughout the rule-making process, to list the acceptable sampling procedures. The requirements of Appendix H reflect a review of widely accepted and practiced sampling procedures and replaces the reference to "EPA approved procedures."

Appendix I

This sample inventory log sheet has not changed.

Appendix J

All the changes pertaining to abandonment by removal have been previously discussed.

Appendix K

All the changes pertaining to abandonment by filling in place have been previously discussed.

General

The Department of Human Services commented that, based on existing information there is no known or established safe level of exposure to hydrocarbons for humans, and that "any restoration of ground water supplies should include the blocking of any possible migration of gas vapors into the house through the soil." The commenter went on to say that the agency was "particularly disturbed about remedial actions contending that interim abatement measures, such as carbon absorption or aeration, could provide a long term remedy to this problem." Although the comment does not address any specific portion of the proposed regulation, it does serve to highlight the complexity of this issue and the need for the Department to provide adequate ground water protection from toxic substances stored in underground facilities.

AUTHORITY: Title 38 M.R.S.A., Section 561 et seq.

EFFECTIVE DATE: APR 5 1986

ACCEPTED FOR FILING: MAR 31 1986